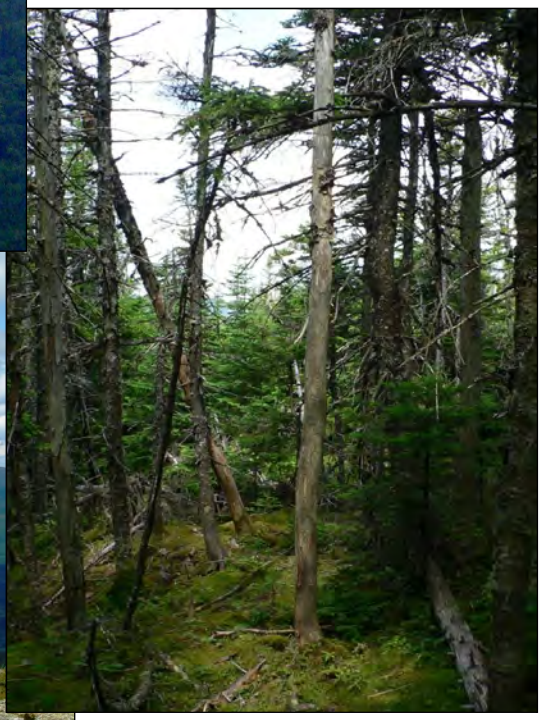
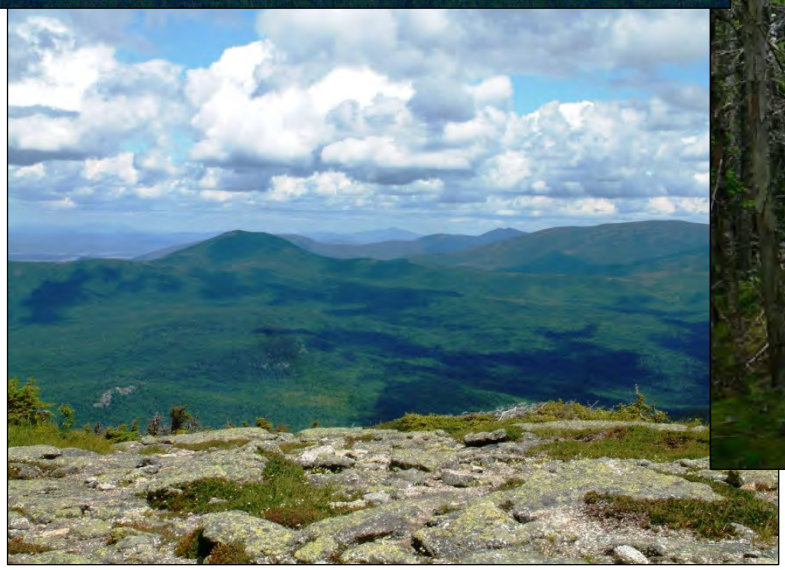
RIDGELINE WINDPOWER DEVELOPMENT IN MAINE: AN ANALYSIS OF POTENTIAL NATURAL RESOURCE CONFLICTS





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EXECUTIVE SUMMARY

Wind is one of the primary indigenous sources of renewable energy in New England. Encouraged by state and federal energy policies, the last decade has seen the rise of a commercial wind power industry in the region. However, this development has generated considerable controversy. In New England the commercially viable terrestrial wind resource is primarily limited to ridgelines – generally the least developed, most "natural" parts of the landscape and often areas of significant ecological, recreational and scenic value. This has created a potential conflict between two worthy public policy goals – open space conservation and renewable energy development.

This report presents the results of a GIS-based analysis that assesses the relationship between potential ridgeline wind power development sites in Maine and natural resource values of recognized state, regional or national significance for which information is available. The study was undertaken to inform the debate over how to balance ridgeline wind power development with conservation of important high-elevation areas within the state, to provide a comparison of the relative resource value of various potential development sites, and to help understand the tradeoffs that might be involved in promoting particular levels of ridgeline wind power development.

When this project was started there were no operating commercial wind power facilities in the state. Over the past few years, however, there have been significant changes in the industry, technology and public policy. At this time Maine can draw experience from 1) the completion of four commercial "grid-scale" wind power projects, the permitting of five others, and the identification of numerous other projects in earlier stages of development; 2) technological and economic changes that enhance the feasibility of development in lower wind regimes at lower elevation than considered in this study; 3) the work of the Governor's Task Force on Wind Power Development, resulting in the passage of the 2008 Wind Siting law and the delineation of the expedited permitting area; and 4) the initial attempts by the Land Use Regulation Commission to assess the cumulative visual impacts of multiple developments. Where possible these developments were incorporated into the analysis as it progressed[1].

The analysis used publicly available wind resource data to delineate potential development sites, defined as primary ridgelines at least one mile long underlain by modeled Class 4 or greater wind resource. A total of 670 miles of ridgeline at 267 separate sites was delineated. Individual sites were evaluated for their conservation and regulatory status, as well as the extent to which they overlay the following resource values: extent above 2700 and 3500 feet in elevation; rare plant, animal and natural community occurrences; Beginning with Habitat Focus Areas; priority summit ecosystems identified by The Nature Conservancy; large roadless areas; potential Bicknell's thrush habitat; steep slopes; ridgeline ponds; hiking trails; Appalachian Trail viewshed; and statutorily defined scenic resources within three miles. A simple scoring system was used to create a composite resource value score for each ridgeline. Finally, an assessment

[1] There have also been notable advances in the ability to mitigate certain adverse impacts of wind power development that are not directly related to this analysis. These include the availability of FAA-approved technologies that allow for a reduction in night lighting and more subdued tower coloration, and the use of higher turbine cut-in speeds to reduce bat mortality .

was done of the potential cumulative impact of development at a level necessary to meet the legislatively-established goals for wind power development.

Thirty-five percent of the sites lie wholly on conservation land (including conservation easements), another 16% lie partially on conservation land, and 49% wholly on unrestricted private land. Thirty-one percent of the sites lie wholly within the expedited permitting area, another 13% lie partially within the area, and 56% lie outside of it. However, there is a marked difference between conserved and unconserved sites; 75% of the sites on conservation land but only 45% of the sites on private land lie outside of the expedited permitting area. Nearly two-thirds of the sites lie entirely within the jurisdiction of the Land Use Regulation Commission, with only 16% entirely within organized towns. Eleven percent lie partially within LURC jurisdiction and 8% within Baxter State Park.

The results of the individual resource overlays include:

- 48% of the sites (but only 34% of the total length of ridgeline) extends above 2700 feet.
- 44% of the sites have current or historical records for rare plants or natural communities.
- 28% of the sites lie wholly within a Beginning with Habitat Focus Area.
- 8% of the sites have documented rare animal occurrences.
- 19% of the sites overlay priority summit ecosystems identified by The Nature Conservancy's Northern Appalachian – Boreal Ecoregional Analysis.
- 24% of the sites lie entirely within a roadless area of at least 5,000 acres identified by AMC.
- 25% of the sites have at least half their length classified as potential Bicknell's thrush habitat (based on a model developed by the Vermont Institute of Natural Science).
- 6% of the sites contain ridgeline ponds.
- 33% of the sites are accessed by one or more hiking trails, with 13% traversed or crossed by the Appalachian Trail.
- 87% of the sites have at least one significant scenic resource within three miles, with 41% having three or more.

There is a strong relationship between the presence of natural resource features considered in this analysis and the conservation status of the ridgelines. For example, 87% of the sites on "reserve" land[2] but only 8% of the sites on private land lie within a Beginning with Habitat Focus Area, 69% of the sites on reserve land but only 7% of the sites on private land lie entirely within a large roadless area, and 71% of the sites on reserve land but only 8% of the sites on private land contain a hiking trail. This result is not surprising, as conservation of mountains has focused on those areas with the highest known resource value.

The composite resource scoring system weighted all resources equally and allowed a maximum score of 12[3]. The results show a strong concentration of sites at the lower end of the scale (i.e., sites with few identified resources values), with over half the sites scoring less than 2 and nearly

[2] "Reserve" is one of the classifications of conservation land used in the study. About three-quarters of the sites on conservation land lie on reserve land.

[3] An alternative approach that excluded the two scenic resource categories and differentially weighted the others did not lead to significantly different results.

one-third less than 1. The highest scoring sites (between 6.5 and 7.8) were The Horns, Bigelow Mountain, Old Speck and Mount Katahdin.

The clear distinction between conservation and private lands is strongly present in the composite resource scores as well. Over half of the private land sites, but only three sites on conservation land, scored less than 1. Over 80% of the private land sites, but only 12% of the conservation land sites, scored less than 2. At the other end of the scale, 49% of the conservation land sites, but only a single private land site, scored higher than 4.

There is a clear spatial pattern in the distribution of high-scoring sites. Of the 28 highest-scoring sites, 27 are concentrated in four areas – the Mahoosucs, the Western High Mountains, the 100-Mile Wilderness, and Baxter State Park. Fifty-five of the 59 highest-scoring sites, and 83 of the top 100, are concentrated in seven areas – the four previously mentioned plus the White Mountain National Forest, Acadia National Park and the northern Boundary Mountains. Of the top 100 sites, only two - Moxie Mountain and Burnt Hill (the eastern ridgeline of Sugarloaf Mountain) - lie entirely on private land within the expedited permitting area[4].

Of these seven areas, the northern Boundary Mountains (extending from Sisk Mountain across Kibby to the Tumbledown range south of the Moose River) is the only one where sites lie primarily on private land. Sites in the other areas are either completely conserved (Baxter State Park, Acadia National Park), almost completely conserved (White Mountain National Forest, Mahoosuc Range) or located in areas of high conservation interest with a significant component of conservation land (the 100-Mile Wilderness, Western High Mountains).

At the other end of the scale there are 63 sites totaling 147 miles of ridgeline that are in private or mixed ownership[5], have a composite resource score of less than 2, and lie wholly or predominately within the expedited permitting area. These sites also tend to be spatially clustered, with the greatest concentrations in the Androscoggin Valley region of southern Oxford and Franklin counties and the area north and east of Coburn Mountain. Three of these sites have operating wind power projects, and three others have approved permits. How many others may be suitable for development is difficult to determine. *It is critical that readers understand that identification of these sites does not constitute a finding that they are suitable for development*. Many may have limitations related to topography, road access, transmission capacity or the availability of land. The level of local support for or opposition to development at these sites is unknown. Some may contain significant ecological features that will not be known until site-specific analyses are conducted. A particular area of uncertainty is the potential scenic impact, which can only be evaluated by more detailed site-specific analyses.

Of the remaining 104 sites, (i.e. those not in the top 100 or the 63 described above) few if any appear to be realistic candidates for development at this time, as most lie either on conservation land or outside of the expedited permitting area.

[4] Two other high-scoring private land sites (Kibby and Sisk mountains) have about one-third of their length within the expedited permitting area; both are the site of operating or permitted projects.

[5] If in mixed ownership, the portion on conservation land does not lie within a state or national park, wilderness or reserve area.

Assessing the cumulative development potential relative to the legislatively-established goals for terrestrial wind power development[6] presents a pessimistic picture. Developing every private land site within the expedited permitting area identified in this analysis, combined with operating and permitted projects, would provide about 2,000 MW of capacity – far short of the 2030 goal. Even under a very optimistic scenario (which assumes that a 500-MW project will be developed in Aroostook County, and 40% of other future development will occur at sites not included in this analysis), nearly 90% of the privately-owned ridgeline within the expedited permitting area without obvious resource conflicts would need to be developed to meet the 2030 goal. Clearly not all sites identified in this analysis will be available or suitable for development, and where the additional 40% of future capacity (the equivalent of nearly 20 Mars Hill-sized projects) would be located is unknown. This raises a significant question as to whether the 2030 development goal for terrestrial wind power can realistically be met.

Development of this magnitude would result in a massive transformation of Maine's scenic landscape. Nearly the entire western mountains region from the New Hampshire border to Moosehead Lake could be within 15 miles of a project. Multiple projects would likely be visible from most of the region's significant high-elevation viewpoints. Concentrations of development in certain parts of the state raise questions of social justice for the residents of those areas who will bear most of the impacts of development. Whether the citizens of the state are willing to accept this level of cumulative impact is a critical public policy question.

[6] 2,000 MW of installed capacity by 2015 and 3,000 MW by 2030.

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INTRODUCTION

Wind is one of the primary indigenous sources of renewable energy in New England. Encouraged by state and federal energy policies, the last decade has seen the rise of a commercial wind power industry in the region. However, this development has generated considerable controversy. In New England the commercially viable terrestrial wind resource is primarily limited to ridgelines – generally the least developed, most "natural" parts of the landscape and often areas of significant ecological, recreational and scenic value. This has created a potential conflict between two worthy public policy goals – open space conservation and renewable energy development.

This report presents the results of a GIS-based overlay analysis that assesses the relationship between potential ridgeline wind power development sites in Maine and natural resource values of recognized state, regional or national significance for which information is available, and which lend themselves to this type of analysis. The report is intended to provide interested parties with a basis for discussion of how to balance ridgeline wind power development with conservation of important high-elevation areas within the state, to provide a comparison of the relative resource value of various potential development sites, and to help understand the tradeoffs that might be involved in promoting particular levels of ridgeline wind power development.

When this project was started there were no operating commercial wind power facilities in the state. When this project was started there were no operating commercial wind power facilities in the state. Over the past few years, however, there have been significant changes in the industry, technology and public policy. At this time Maine can draw experience from 1) the completion of four commercial "grid-scale" wind power projects, the permitting of five others, and the identification of numerous other projects in earlier stages of development; 2) technological and economic changes that enhance the feasibility of development in lower wind regimes at lower elevation than considered in this study; 3) the work of the Governor's Task Force on Wind Power Development, resulting in the passage of the 2008 Wind Siting law and the delineation of the expedited permitting area; and 4) the initial attempts by the Land Use Regulation Commission to assess the cumulative visual impacts of multiple developments. Where possible these developments were incorporated into the analysis as it progressed[7].

In 2007 Governor Baldacci established the Task Force, charged with making recommendations that would make Maine a leader in wind power development while protecting the state's quality of place and important natural resource values[8]. The recommendations of the Task Force were enacted into legislation in 2008 (LD 2283). The most significant recommendations were 1) the establishment of aggressive goals for wind power development in the state (which have since been increased by the legislature), 2) the creation of an "expedited permitting area", encompassing all organized towns and about one-third of the unorganized territory, and 3) a

[7] There have also been notable advances in the ability to mitigate certain adverse impacts of wind power development that are not directly related to this analysis. These include the availability of FAA-approved technologies that allow for a reduction in night lighting and more subdued tower coloration, and the use of higher turbine cut-in speeds to reduce bat mortality .

[8] The Appalachian Mountain Club served as an alternate member of the Task Force.

relaxation of the standards for review of scenic impact within the expedited permitting area (while retaining a high level of protection for specified scenic resources of state or national significance). Both the Task Force and the subsequent legislation recognized that delineation of the expedited permitting area within the unorganized territories was at a fairly coarse landscape scale, and that it did not resolve all issues related to wind power development at the more detailed site-specific level. This study addresses two questions related to the Wind Siting Law: 1) how effective is the expedited permitting area in guiding wind power development to suitable areas, and 2) How realistic are the wind power development goals, and what types of cumulative impacts might occur if the state were to meet them?

Currently there are four large facilities in operation (Mars Hill, Stetson Mountain I and II and Kibby Mountain, totaling 258 megawatts [MW] of capacity), five others totaling 215 MW that have been permitted[9], and many others in various stages of permitting review or pre-application development. One project (Redington/ Black Nubble) has been denied a permit. The most controversial projects have been those located above 2700 feet in elevation (Redington/Black Nubble, Kibby Mountain and Sisk Mountain, as well as the Granite Reliable Windpark in northern New Hampshire), with the primary concerns being the impact on relatively undisturbed high elevation ecosystems and associated rare habitats and species, and projects located in close proximity to highly scenic portions of the Appalachian Trail (Redington/Black Nubble and Highland Plantation). Most projects located below 2700 feet or away from the Appalachian Trail have been less controversial, though all projects have created varying levels of opposition (as indicated by the appeal of most permitting decisions).

This analysis focuses on ridgelines at least one mile in length underlain by Class 4 and above wind resource as delineated by widely-used modeled wind resource data[10] (Map 1). These types of sites have been the focus of most commercial wind power proposals in the Northeast. However, these are just a subset of the areas available for wind power development in the state:

- Increasing attention is being given by developers to areas designated as Class 3 in the model data. These areas may possess higher-than-modeled winds, or may have become economically viable with changes in technology and economics. Areas mapped as Class 3 expand the extent of ridgeline available for development[11] and open up additional types of areas, including agricultural and coastal areas[12].
- There is an extensive high wind resource in coastal and offshore areas. These areas involve their own set of technical and economic challenges but have great potential if

[9] Rollins, Kibby expansion, Oakfield, Record Hill and Spruce Mountain; the latter four of these are under appeal.
[10] The analysis used data on windpower class at 50 meters above ground level developed by AWS Scientific, Inc. (AWS TrueWind) as part of a project jointly funded by the Connecticut Clean Energy Fund, the Massachusetts Technology Collaborative, and Northeast Utilities System. Wind resource class, which uses values from 1 (lowest) to 7 (highest) is a measure of the energy that can be extracted from wind and is based primarily on average wind speed. The report accompanying the model data states, "Generally speaking, commercial wind power projects using large turbines require a resource with a mean speed of at least 7 m/s or mean power of at least 400 W/m^2 (National Renewable Energy Laboratory class 4)."
[11] For example, the Stetson Mountain I and II, Rollins Mountain, Oakfield, Bowers Mountain and Bull Hill sites were not included in this analysis as the wind resource data did not include a sufficient extent of Class 4 wind.
[12] AMC is considering expanding this analysis to include these sites if funding permits.

these can be solved. There is a concentrated effort underway in the state to develop the state's offshore wind resource.

- Considerable attention is being given to opportunities for "community-scale" wind power. These are smaller facilities that are often designed for local or on-site electrical generation. They are generally located in more developed areas where the necessary infrastructure is in close proximity.

Not all information relevant to assessing these ridgelines is available in a form that can be included in the analysis. Information not included in the analysis is described later in the report. In addition, readers should pay close attention to the limitations and caveats that are expressed throughout this report.

The discussion of the results presents information on sites which possess natural resource values that may conflict with or constrain development. We believe that this analysis provides guidance and valuable information for an initial review on the relative suitability of different sites for development. However, it is not intended to be the final word on where wind power should and should not go. Determination of the suitability for development of any particular site or region needs to include site-specific information beyond that available for this analysis, and involves a balancing between the benefits of renewable energy and the impacts created by development.

Finally, it is important to recognize that this information is presented as a planning tool, and does not represent any position on the part of AMC as to either the suitability of any particular site for development or the appropriate level of overall wind power development across the state.

METHODS

Identification of potential ridgeline development sites

Potential wind power ridgeline development sites were identified with reference to the modeled wind resource data developed by AWS TrueWind. This data was developed using a combination of topographic and climatic modeling, and provides information on mean wind speed as well as the energy available at different wind speeds at a 200-meter grid scale. Data on wind power class at 50 meter height were used for this analysis. All ridgelines underlain by Class 4 and above wind resource were digitized on-screen using contour line data overlaid on the wind power class data. In some cases longer continuous ridgelines were broken into two or more separate sites at prominent saddles in order to provide a more precise spatial focus for the analysis.

A total of 1,091 miles of ridgeline was delineated. Some part of this length consists of short ridgelines or side ridges off of longer main ridges. In order to focus on sites with the greatest potential for commercial development, we considered only primary ridgelines at least one mile in length. Shorter ridgelines are generally insufficient to support commercial-scale projects. Side ridges may expand the potential of a site but are unlikely to be developed in the absence of development of the main ridge. This left 670 miles of ridgeline at 267 separate sites (Map 2), which averaged about 2.5 miles in length and ranged from 1.0 to 7.8 miles.

Data included in overlay analysis

The analysis incorporates data relevant to assessing the natural resource value of potential development sites that was available at the time of the analysis. The data includes resource values of recognized national, regional or statewide significance that have been developed through public processes or detailed scientific analysis. For each site, the information includes:

Conservation and regulatory status

- The conservation and ownership status of the ridgeline. Ridgelines were classified as follows based on the nature of the underlying land ownership:

  Reserve – Ridgelines on land owned in fee by public agencies or non-profit conservation organizations where development is legally prohibited or clearly inconsistent with the goals of ownership or management (e.g., Appalachian Trail corridor, designated wilderness areas and ecological reserves, state and national parks, and land owned by groups such as The Nature Conservancy[13, 14]).

  Easement – Ridgelines on land covered by a conservation easement that prohibits development[15].

  Other Conservation – Ridgelines on conservation land on which development is not legally prohibited and could potentially be considered (including WMNF management areas where wind power development would be allowed, other federal land [the US Navy Redington SERE school tract], MBPL land outside of ecological reserves, and town forests).

  Private – Ridgelines on private land where development is not restricted by easement.

  Some ridgelines extend across multiple ownership and conservation categories. Ridgelines were assigned to the Reserve, Easement or Other Conservation categories if less than one mile of the ridgeline extended on to unrestricted private land. Sites lying partially on conservation land but with at least one mile on unrestricted private land were classified as Mixed Ownership.

- Expedited Permitting Area. The percentage of the ridgeline lying within the legislatively-established Expedited Permitting Area was recorded.

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[13] Within the White Mountain National Forest, management areas in which windpower would be prohibited under the current management plan were included in this category. Similar data on management areas for Maine Bureau of Parks and Lands was not available so was not considered (with the exception of designated ecological reserves). MBPL lands outside of ecological reserves were included in the Other Conservation category, though some management areas (such as Non-Mechanized Backcountry Recreation) would more appropriately be considered under Reserve lands.

[14] We recognize that private non-profit conservation organizations have the right to consider windpower development on their lands (unless restricted by easement or other provisions). However, it is likely that such development would strongly conflict with the goals of these conservation ownerships.

[15] In a few cases ridgelines form the boundary of conservation easements. In these cases the ridgeline was treated as though it was fully covered by the easement, since a prohibition of development on one side of a ridgeline is likely to be a serious impediment to development.

- Land Use Regulation Commission (LURC) jurisdiction. The percent of the ridgeline that lies within LURC jurisdiction was recorded.

- LURC P-MA (Protection – Mountain Area) zones. The percentage of the ridgeline within P-MA zones was recorded[16].

Site-specific resource data[17]

- High elevation land. The length of each ridgeline lying above 2700 feet and 3500 feet in elevation was calculated. 2700 feet is the approximate beginning of the high-elevation ecological zone, characterized by thinner soils, harsher climate, and a transition to spruce-fir forest. It is the basis for the designation of LURC's P-MA zone. Lands above 3500 feet encompass rarer subalpine and alpine vegetation communities, and because timber harvesting rarely occurs above this elevation are the most likely parts of the landscape to have remained in a relatively natural condition.

- Natural Heritage Inventory Element Occurrences. The delineated ridgelines were submitted to the Maine Natural Areas Program, which provided information for each ridgeline on the presence of rare plant or natural community element occurrence (EO) records. Information included the number of plant or community EOs intersected by the ridgeline, separated into current (i.e., verified within the last 20 years) or historic records. No information was provided on the specific identity or location of the EOs or how much of the ridgeline was affected; in many cases the area underlain by EOs may represent a small portion of the ridgeline. It is important to note that NHI records are not complete; many sites (especially on private land) have not been surveyed and the results are thus biased toward public land and areas of known ecological significance.

- Beginning With Habitat Focus Areas. These areas were delineated as part of the development of the Comprehensive Wildlife Conservation Strategy by the Maine Department of Inland Fisheries and Wildlife[18]. These are described as "Landscape scale areas that contain exceptionally rich concentrations of at-risk species and natural communities and high quality common natural communities, significant wildlife habitats, and their intersection with large blocks of undeveloped habitat." The proportion of each ridgeline lying within a BWH Focus Area was calculated.

- Rare animal species occurrences. Data obtained from the Maine Department of Inland Fisheries and Wildlife includes recorded occurrences of state-listed Endangered, Threatened

[16] P-MA zones are specifically included as they are the zoning district most likely to affect ridgeline windpower development in the state. However, under the revised permitting rules wind power is an allowed use in P-MA zones within the expedited permitting area, so this designation is less constraining than zones outside the expedited area. Other LURC protection zones affect very limited parts of these ridgelines and were not considered.

[17] We recognize that these resource categories are not totally independent. The designation of both Beginning With Habitat focus areas and TNC critical summit ecosystems is influenced by the presence of Natural Heritage Inventory Element Occurrences. There are strong correlations between Bicknell's thrush habitat and high elevation lands and between hiking trails and the Appalachian Trail viewshed. However, we believe these categories include sufficiently distinct information that it is appropriate to consider them separately.

[18] See www.state.me.us/ifw/wildlife/groups_programs/comprehensive_strategy/pdfs/statewide_focus_area_map.pdf.

or Special Concern species. Occurrences are shown as an 800-meter diameter circle. For each ridgeline, occurrences were counted if this circle overlapped a 100-meter buffer around the ridgeline. It is important to note that these records, like natural community and rare plant records, are incomplete and do not provide a full picture of the distribution of rare species across the state.

- TNC critical summit ecosystems[19]. Summits (described as "mountain peaks, hilltops, ridgelines, knolls") are one of six special landform/ecosystem types identified as being of particular importance to the conservation of regional biodiversity in The Nature Conservancy's Northern Appalachian-Acadian Ecoregional Assessment[20]. Critical occurrences are considered "crucial to the conservation of biodiversity in the ecoregion" and have passed a screening process that considers size, landscape quality and verification. For each ridgeline the proportion of the ridgeline and surrounding 100-meter buffer that overlay a priority summit ecosystem was calculated.

- Large roadless areas. These are areas of at least 5,000 acres delineated by AMC from satellite imagery from the year 2000 and other imagery dating back to 1973, and which contain no obvious evidence of roads or forest clearing dating back to the earliest imagery (though they may contain minor roads not visible on the imagery, as well as areas of partial harvesting)[21, 22]. They represent those portions of the landscape that have seen the least impact from human activity over the past few decades. Development of sites within large minimally roaded forest blocks raises greater concerns about habitat fragmentation. The proportion of each ridgeline lying within a large roadless area was calculated.

- Potential Bicknell's thrush habitat. Bicknell's thrush is the rarest migratory songbird in the east and is endemic to subalpine spruce-fir forest in the northeastern United States and maritime Canada. The analysis used a model of potential Bicknell's thrush habitat developed by the Vermont Institute of Natural Sciences[23]. The model (which originally used 30-meter-resolution National Land Cover Data from 1992 to delineate spruce-fir forest) was updated using 5-meter-resolution Maine Land Cover Data from 2004[24]. It is important to recognize that this model does not assess the quality of the modeled habitat or the actual presence of Bicknell's thrush within the modeled habitat. The proportion of each ridgeline and surrounding 100-meter buffer lying within potential Bicknell's thrush habitat was calculated.

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[19] The inclusion of this data is not intended to represent any position on the part of The Nature Conservancy regarding windpower development in these areas.

[20] Anderson, Mark et al. 2006. Northern Appalachian – Acadian Ecoregional Assessment Resource CD. The Nature Conservancy, Eastern Conservation Science, Boston, MA.

[21] Publicover, David and Cathy Poppenwimer. 2006. Roadless Areas in Northern New England: An Updated Inventory. AMC Technical Report 06-1, Appalachian Mountain Club, Gorham, NH.

[22] Because road construction and harvesting has altered these areas since the 2000 base year, the current condition of roadless areas containing ridgelines was assessed using recent aerial photography available on Google Earth and adjustments made if appropriate.

[23] Lambert, J. Daniel et al. 2005. A practical model of Bicknell's thrush distribution in the northeastern United States. The Wilson Bulletin 117(1): 1-12. (Data provided on CD by VINS.)

[24] Dan Lambert of VINS has indicated that he considers this an appropriate modification to the model.

- Steep slopes. Steep slopes were defined as slopes greater than 25% as determined from USGS 30-meter Digital Elevation Model data[25, 26]. Sites were evaluated by two measures – the percent of ridgeline (site plus surrounding 25-meter buffer) consisting of steep slopes, and the percent of adjacent upper slopes (extending from 25 to 250 meters from the site) consisting of steep slopes. Ridgeline topography will have the greatest effect on the ability to site turbines, while upper slope topography will affect the options for siting access roads to the ridgeline[27].

- Ridgeline ponds. Ridgeline ponds are a relatively rare feature in the state, may potentially be of high ecological and/or recreational value, and may create a significant impediment to development. The presence of a pond shown in USGS 1:100,000 Digital Line Graph data within 100 meters of the designated ridgeline, and whether or not is was classified as a designated Remote Pond, was noted[28].

- Hiking trails. Hiking trail data includes all trails referenced in AMC's Maine Mountain Guide as well as additional trails shown in the Maine Delorme Atlas or known from other sources. Ridgelines were classified as to whether they were traversed or crossed by the Appalachian Trail or traversed or accessed by a trail other than the AT. The number of trail access points to the ridgeline was also noted. (Multiple access points originating from a single trailhead were counted as a single access point.)

- Appalachian Trail viewshed. The Appalachian Trail Conservancy provided data on a viewshed analysis they have conducted for the Appalachian Trail in Maine. USGS 30-meter Digital Elevation Model data was used as the basis for the analysis. The analysis involved placing virtual viewpoints every ¼ mile along the length of the trail. For each DEM pixel within 10 miles of the trail, a value was calculated representing from how many of the viewpoints on the trail (and which lay within 10 miles of that pixel) that pixel was visible.

  The ATC viewshed analysis does not consider distance from the AT. In order to incorporate this factor, all pixels within 2 miles of the AT were weighted by a factor of 4, and all points between 2 and 4 miles were weighted by a factor of 2[29].

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[25] This is relatively conservative; various wind resource availability assessments conducted by the USDOE National Renewable Energy Laboratory use an exclusion of slopes greater than 20%.

[26] USDA National Resource Conservation Service county-level soils data could also be used to assess this parameter, however this data is not yet available for the entire study area. Soil map units with slope classes D or E are generally classified as "highly erodible" and would be an appropriate delineation of steep slopes.

[27] We recognize that sites with a high proportion of steep upper slope may still have suitable access pathways across less steep slope, and that detailed site evaluation is necessary to determine the actual topographic limitations to development.

[28] There were other ridgelines that had mid- or upper-slope ponds in close proximity to the ridgeline (though greater than 100 meters). If designated as Remote Ponds the LURC P-RR zone around the pond would extend across the ridgeline and would need to be considered if development were proposed. However, these ponds were not included in the analysis.

[29] These zones do not correspond to the visual sensitivity zones specified in the recently-enacted wind permitting legislation, which specifies a primary zone within 3 miles of a project (in which a visual analysis of impact to specified scenic resources will be required) and a secondary zone out to 8 miles from a project (in which an analysis may be required). However, the viewshed analysis was not adjusted to reflect these zones.

Each ridgeline was buffered by 100 meters. The average value of all weighted viewshed pixels within the buffered area was calculated. Resulting values were pro-rated to a 0 to 100 scale, with higher values representing greater potential visibility.

It is important to note that the analysis considers only potential visibility at ground level given the shape of the topography. It does not consider screening effects of vegetation, the visibility of turbines extending above ground level, or scenic context. In addition, this type of analysis may be sensitive to minor errors in the placement of the viewpoints (i.e., which side of the high point of the ridgeline they are located on).

- Significant scenic resources. The recently-enacted revisions to Maine wind power permitting legislation set forth a list of "scenic resources of state or national significance" that must be considered during permitting. A visual assessment will be required for projects lying within 3 miles of a listed resource, and may be required for resources within 8 miles of a project[30]. The following listed resources were included in this analysis:

  - National Natural Landmarks and federally designated Wilderness areas.
  - National and state parks[31].
  - Great Ponds identified as having outstanding or significant scenic quality in the Maine Wildlands Lakes Assessment and the Maine Lakes Study.
  - Scenic rivers identified in the Maine Rivers Study.

  Other scenic resources identified in the legislation were not included in the analysis because data was not readily available or implementing rules are still being developed:

  - Properties listed on the National Register of Historic Places.
  - Scenic viewpoints located on state public reserved land or on a trail that is used exclusively for pedestrian use[32].
  - Scenic turnouts on designated scenic highways.
  - Scenic viewpoints located in the coastal area.

  For each ridgeline, the number of listed scenic resources lying within a 3-mile buffer around the ridgeline was assessed[33]. This evaluation is admittedly crude, as it does not assess issues such as the actual visibility of the ridgeline from the feature or the nature and extent of the potential visual impact relative to the standards set forth in the legislation[34]. The presence of

[30] Upon a finding of the permitting agency, an analysis of the visual impact of a project's "associated facilities" (roads, turbine pads, generator lead lines, etc) may be required for resources beyond eight miles, using the evaluation standards in place prior to the enactment of the Wind Siting Law.

[31] As an element of the National Park System, the Appalachian Trail is included in this category. We have used the trail itself, not the corridor lands owned by the National Park Service.

[32] The rule identifying these viewpoints has been adopted, but the analysis was not adjusted to include these.

[33] We used the three mile rather than the eight mile limit because scenic resources within three miles of a project are the ones most likely to have a view of the project and to be signficantly impacted by it. Consideration of resources out to eight miles is also necessary for the visual impact analysis but there is greater uncertainty as to their significance in evaluating a site.

[34] The legislation states that consideration shall be given to: the significance of the potentially affected scenic resource; the existing character of the surrounding area; the expectations of the typical viewer; the development's purpose and the context of the proposed activity; the extent, nature and duration of potentially affected public uses

a significant scenic resource within the 3-mile zone does not mean the project will necessarily have an adverse impact on that resource.

Landscape analysis information

There have been two significant landscape analyses of the Northern Appalachian – Acadian ecoregion that can help inform decisions about wind power siting. These sources are not included in the analysis of specific sites, but are described here in general terms so that developers and planners can be aware of the information they include.

First, the Nature Conservancy's Northern Appalachian – Acadian Ecoregional Analysis[35] identified a number of priority ("Tier 1") matrix forest blocks, representing large (>25,000 acres) areas that were at the time of the analysis relatively unfragmented by major roads or permanent human development. These areas, if conserved through a combination of core reserve and sustainably managed buffer, would comprise a portfolio of areas that encompass the full range of ecological diversity across the ecoregion. The priority blocks were chosen based on their condition at the time of the analysis (i.e., the extent to which they have been impacted by human activity), their contribution to representation of different biophysical characteristics of the landscape, the extent to which they contain specific rare or high-quality ecological elements and their landscape context.

Nearly 40% of the potential wind power development sites lie in these priority matrix blocks. However, about 70% of these are concentrated in four areas – the Caribou-Speckled region of the White Mountain National Forest, the Mahoosucs region, the Western High Mountains (Saddleback-Sugarloaf-Bigelow) region, and Baxter State Park. In these areas the mountains (as well as the relatively undeveloped nature of these mountainous regions) are important parts of the rationale for the selection of these areas as priorities. However, in other areas, the potential development sites may or may not be critical features – in some cases they may be included in priority blocks that were selected for other reasons.

Second, the Wildlife Conservation Society (WCS) has developed a global analysis of the "human footprint" on natural ecosystems[36]. This analysis combines information on population density, land use and land cover, infrastructure and other features to develop a relative scale of the intensity of human activity on the landscape. As part of the Two Countries One Forest initiative, WCS-Canada has developed a more refined human footprint analysis for the Northern Appalachian – Acadian ecoregion[37]. Among the information presented is the identification of the "Last of the Wild" – the 10 largest areas of low human footprint within each ecological subsection[38].

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of the scenic resource; and the scope and scale of the potential effect of views of the generating facilities on the scenic resource.

[35] Anderson et al. 2006 op. cit. As with the priority summits discussed earlier, inclusion of this information is not intended to represent any position on the part of The Nature Conservancy regarding windpower development in these areas.

[36] See http://www.wcs.org/sw-high_tech_tools/landscapeecology/humanfootprint.

[37] See http://www.wcscanada.org/humanfootprint.

[38] See http://www.wcscanada.org/media/file/LTW.pdf.

These areas must be interpreted with caution. Within the large undeveloped portions of the Maine landscape, the primary drivers of the human footprint are timber management roads and harvesting patterns. Data on both of these factors is not fully up-to-date, and because of on-going road construction and the shifting nature of harvesting patterns the "lowest human footprint" areas within the working forest are likely to change over time. However, the "lowest human footprint" areas centered on mountainous regions are likely to be more robust, giving the lower suitability of these areas for road construction and timber management. The primary mountainous regions designated as "Last of the Wild" areas by the WCS analysis are the Mahoosucs region west of Route 26, the Saddleback-Sugarloaf-Abraham region, the Lily Bay-Baker-Whitecap Mountains region, and Baxter State Park.

Composite Resource Value

Sometimes a single resource value will be enough to determine that a particular site is inappropriate for development. However, of greater interest is the identification of sites that contain multiple resource values that in combination create a higher level of significance than individual values considered in isolation. Within LURC's Comprehensive Land Use Plan, one of the policies for mountain resources is to "Identify and protect high mountain resources with particularly high natural resource values or sensitivity which are not appropriate for most development." One of the polices for energy resources is "Prohibit energy developments and related land uses in areas identified as environmentally sensitive where there are overriding, conflicting environmental and other public values requiring protection." Both of these policies use the plural "values", implying consideration of how a concentration of individual resource values creates a particularly high level of significance for particular areas. Sites with multiple resource values are more likely to be of high priority for conservation (and consequently less appropriate for development.)

There are many possible ways to combine multiple resource values into a single composite score. The approach we have taken has the advantage of being relatively straightforward, though the raw data can easily be used to explore other possible approaches.

For each of the twelve resource categories, each site was scored as described below. Scores within a category were prorated to a maximum value of one to normalize widely varying raw values between categories. This puts all categories on an equal footing, and allows the categories to be differentially weighted if so desired.

- High elevation land. The length of ridgeline between 2700 and 3500 feet was added to twice the length of ridgeline above 3500 feet. Land above 3500 feet was given twice the weight because of its greater rarity and generally greater ecological and scenic value.
- Natural Heritage Inventory Element Occurrences. 5 points were given for each current natural community record, 3 points for each historic natural community record, 2 points for each current rare plant record, and 1 point for each historic rare plant record.
- Beginning With Habitat Focus Areas. The percentage of the ridgeline within a BWH focus area.
- Rare animal species occurrences. 1 point for each occurrence record.

- TNC critical summit ecosystems. The percentage of the ridgeline and surrounding 100-meter buffer overlaying a critical summit ecosystem.
- Large roadless areas. The percentage of the ridgeline within a roadless area.
- Potential Bicknell's thrush habitat. The percentage of the ridgeline and surrounding 100-meter buffer mapped as potential habitat.
- Steep slopes. Twice the percentage of steep slope within 25 meters of the ridgeline was added to the percentage of steep slope between 25 and 250 meters of the ridgeline. Ridgeline slope is weighted more heavily because it is likely to have a more direct effect on project design and viability; steep sideslopes can be more readily avoided.
- Ridgeline ponds. 3 points were given for a designated Remote Pond and 1 point for other ridgeline ponds.
- Hiking trails. 5 points were given if a site is traversed by the Appalachian Trail, 3 points if it is crossed by the AT, 3 points if it is traversed by a trail other than the AT, 2 points if it is accessed by a trail other than the AT, and 1 point for each access point beyond the first.
- Appalachian Trail viewshed. The raw AT viewshed score was used.
- Significant scenic resources. 1 point was given for each listed scenic resource within 3 miles of the ridgeline.

Two different approaches were taken to combining the scores from the different resource categories:

- *All resources weighted equally*. For each site, the scores from the individual resource categories were summed (giving a maximum possible value of 12).
- *Weighted with scenic excluded*. Scores from the ten non-scenic resource categories were differentially weighted as follows. The two scenic resource categories were excluded because of the uncertainty in how well they reflect actual scenic impact.

Category	Weight
High elevation land	3
Natural Heritage Inventory EOs	3
Beginning With Habitat Focus Areas	3
Rare animal species occurrences	2
TNC critical summit ecosystems	3
Large roadless areas	2
Potential Bicknell's thrush habitat	2
Steep slopes	1
Ridgeline ponds	1
Hiking trails	2

Potential cumulative impacts

In order to investigate questions related to cumulative impacts of potential buildout scenarios, the average statewide capacity (in MW/mile of ridgeline) was determined from projects that have already been approved by permitting agencies. Currently there are nine such projects (Table

1)[39]. Cumulatively they have a capacity of 472.6 MW and occupy about 41.2 miles of ridgeline, for an average capacity density of 11.5 MW/mile.

Table 1. Existing and permitted projects. (Projects in italics were not included in this study.)

Project	Status	Turbines	MW/ turbine	MW (total)	Ridgeline (mi.)
Kibby	Operating	44	3	132	7.8
Mars Hill	Operating	28	1.5	42	3.5
Stetson	Operating	39	1.5	58.5	6.7
Stetson II	Operating	17	1.5	25.5	2.5
Rollins	Under construction	40	1.5	60	6.8
Kibby exp.	Permitted	11	3	33	1.6
Oakfield	Permitted/appealed	34	1.5	51	6.8
Record Hill	Permitted/appealed	22	2.3	50.6	3.7
Spruce Mtn.	Permitted/appealed	10	2	20	1.8
Total				**472.6**	**41.2**

Data not included in analysis

This analysis includes only a subset of the information that is relevant to considering the potential conflict between ridgeline development and natural resource values and the suitability of a site for development. The information included is that which was available at the time of the analysis, lends itself to GIS overlay analysis, and describes resource values of recognized state, regional or national significance. Information that is relevant but which was not part of the analysis includes:

- Topographic suitability, including whether the site is properly aligned to the prevailing winds.
- The presence of fragile or unsuitable soils (though the consideration of steep slopes in some ways serves as a proxy for unsuitable soils).
- The availability of and distance to access roads or transmission capacity.
- Landowner willingness to consider development.
- Economic viability.
- The level of local and broad-based acceptance of or opposition to development.
- Consistency with organized town zoning and regulations.
- The presence of ridgeline wetlands.
- The occurrence of priority wildlife species that are not officially state-listed (other than Bicknell's thrush), such as those identified as Species of Greatest Conservation Need in the Maine Comprehensive Wildlife Conservation Strategy.
- The presence of important wildlife habitats outside of CWCS focus areas (other than potential Bicknell's thrush habitat and roadless areas, which are a proxy for large unfragmented forest blocks)[40].

[39] Two smaller projects that do not meet the regulatory threshhold of "grid scale" projects (the 4.5 MW Beaver Ridge project in Freedom and Fox Island project in Vinalhaven) were not included.

- Whether the site is a significant migratory pathway for birds or bats, or the level of potential mortality risk to these groups.
- Recreational use other than hiking trails.
- Landscape context, i.e., whether the site lies within a broader region recognized for its high natural resource value or in a more heavily developed landscape.
- The level of conservation interest in a site.

Some of these factors (particularly the last two) are considered in the discussion of the results.

RESULTS

Comprehensive results of the overlay analysis for the 267 study sites are given in Table 2 at the end of the report.

Conservation and regulatory status

- Conservation status. Of the 670 miles of ridgeline, about one-third lies on conservation land (24% on Reserve land, 6% lies on Easement land and 2% on Other Conservation land) (Table 3). Forty-six percent lies on unrestricted private land, and another 22% on Mixed Ownership.

Table 3. Distribution of study sites by conservation and expedited permitting area (EPA) status.

Conservation Status	Within EPA		Partially w/in EPA		Outside EPA		Total	
	# of sites	miles	# of sites	miles	# of sites	miles	# of sites	miles
Reserve	16	33	3	7	51	123	70 (26%)	163 (24%)
Other Cons.	2	3			5	8	7 (3%)	11 (2%)
Easement	1	2	1	4	15	36	17 (6%)	41 (6%)
Mixed Own.	11	34	13	55	19	59	43 (16%)	148 (21%)
Private	54	128	18	59	58	121	130 (49%)	307 (46%)
Total	84 (31%)	199 (30%)	35 (13%)	123 (18%)	148 (56%)	348 (52%)	267	670

Future developments could change the conservation status of a number of ridgelines. All or part of eight ridgelines totaling 26 miles lie within the Moosehead Legacy conservation easement approved by LURC as part of the Plum Creek Concept Plan, though only two lie within the expedited permitting area[41]. (Four other ridgelines in the western part of the easement lie in an area where wind power development would be allowed under the terms of the easement.) Several other conservation projects in various stages of progress contain

[40] Legally-recognized Significant Wildlife Habitats include deer wintering areas, waterfowl and wading bird habitat and significant vernal pools. There was no overlap between the study ridgelines and deer wintering areas or waterfowl and wading bird habitat. Digital data on significant vernal pools is not available.

[41] These ridgelines are noted in Table 1. Implementation of the easement is on hold pending resolution of legal appeals of LURC's approval of the Concept Plan.

ridgelines included in this study, though for the most part these ridgelines are unlikely targets for development because of their high conservation value.

- Expedited Permitting Area. About 30% of the study ridgeline lies within the expedited permitting area (Table 3). Another 18% lies partially within the area[42], and slightly over half lies outside of it.

  There is a marked difference in the distribution of ridgelines relative to their conservation status. Over three-quarters of the sites on conservation land (Reserve, Other Conservation or Easement) lie outside the expedited area. In contrast, only 45% of the sites on private land lie outside the area.

- LURC jurisdiction. Nearly two-thirds of the sites lie entirely within LURC jurisdiction. Another 11% lie partially within the jurisdiction, while 8% lie within Baxter State Park and 16% lie entirely within organized towns. Excluding sites within Acadia National Park, there are 35 sites encompassing 79 miles of ridgeline lying entirely in organized towns, of which 27 lie on private land.

- P-MA zones. Of the 203 ridgelines lying wholly or partially within LURC jurisdiction, slightly over half (104) lie at least partially within a P-MA zone. About 40% of the total length of ridgeline within LURC jurisdiction lies within a P-MA zone, and about 40% of this lies on conservation land. Of the ridgeline on private land within the P-MA zone, about 20% lies within the expedited permitting area. About one-third of this is the site of the Kibby Mountain project (including the expansion on to Sisk Mountain), leaving about 17 miles of privately owned ridgeline in P-MA zones within the expedited permitting area, where wind power is an allowed use and rezoning is not required. (An additional 7 miles of privately owned ridgeline lies above 2700 feet in organized towns[43].)

Individual resource data

- High elevation land**.** 128 of the 267 sites extend above 2700 feet in elevation, while 44 extend above 3500 feet. In total about 225 miles of ridgeline (34% of the total) lies above 2700 feet and 44 miles (6.5% of the total) lies above 3500 feet.

- Natural Heritage Inventory Element Occurrences (EOs)**.** 66 sites have current records for either plant or natural community EOs along some part of their length (49 sites have only community records, 1 site has only plant records, and 16 sites have both). Many of these sites also have historic records. An additional 52 sites have only historic plant or community records. Overall about 44% of the sites have one or more current or historic EO records. The actual amount of ridgeline affected by EOs is not known as this information was not provided by MNAP. Community occurrences may extend for some distance along a

[42] The legislation establishing the Expedited Permitting Area includes provisions for expanding the expedited area. One of the three criteria that needs to be met is that the proposed addition "Involves a logical geographic extension of the currently designated expedited permitting area." Sites partially within the expedited area are potential candidates for addition to the area assuming the other criteria are satisfied.

[43] See Table 8 in the Discussion section for a listing of specific sites.

ridgeline (especially at higher elevations), while plant records are point locations and are often located within a community occurrence.

- Beginning With Habitat Focus Areas. 74 sites lie wholly within a Beginning with Habitat Focus Area, and another 19 lie partially within one. Overall about 205 miles of ridgeline (31% of the total) lie within these areas.

- Rare animal species. There are 22 sites that overlap a total of 29 documented rare species occurrences, with three of these sites containing two occurrences and two sites containing three occurrences. The 29 occurrences include peregrine falcon (12), rock vole (7), golden eagle (6), northern bog lemming (2), arctic pipit (1) and Katahdin arctic butterfly (1).

- TNC critical summit ecosystems. 51 sites totaling 152 miles (23% of the total length) overlay an area designated as a Priority Summit Ecosystem by TNC for at least part of their length. Of these sites, 34 lie on conservation land, with the great majority in Reserve areas.

- Large roadless areas. 102 sites lie at least partially within AMC-identified roadless areas. Of these, 96 have at least half their length within a roadless area and 65 lie entirely within one. In total about 250 miles of ridgeline (37% of the total) lie within a roadless area. This reflects the fact that high elevation areas are the least likely parts of the landscape to contain roads due to challenging topography and lower-quality timber.

- Potential Bicknell's thrush habitat. 151 sites overlay modeled potential Bicknell's thrush habitat along at least part of their length. However, of these only 66 have at least half of the area within their 100-meter buffer classed as potential Bicknell's habitat, and only 29 have at least three-quarters of the buffered area classed as potential Bicknell's habitat. In total about 29% of the buffered area is potential Bicknell's habitat.

- Steep slopes. Sites vary widely in the extent of steep slopes. Ridgeline areas (the linear site plus a 25-meter buffer) range from 0 to 68% of their area in steep slopes, with a median of 24%. Upper slope areas (from 25 to 250 meters from the ridgeline) range from 1 to 91% of their area in steep slopes, with a median of 53%.

- Ridgeline ponds. Only 16 sites had ridgeline ponds, with one site (Tumbledown Mountain north of Weld) having two. Of these, seven had LURC-designated Remote Ponds[44].

- Hiking trails. 87 sites are accessed by one or more hiking trails. Of these, 30 are traversed by Appalachian Trail along at least part of their length and another 5 are crossed by the AT. Another 52 sites are traversed or accessed by other trails. Of the sites with trails, 87% lie wholly or partially on conservation land.

- Appalachian Trail viewshed. Of the 267 sites, 35 are contiguous with the Appalachian Trail, 45 are within 3 miles at their closest point, and 42 are between 3 and 8 miles at their closest

[44] In one case, the pond (Speck Pond) lay at the junction of two sites (Mahoosuc Mountain and Old Speck Mountain) and thus was counted for both.

point. Of the total ridgeline included in the study, 26% is within 3 miles of the Trail and another 22% is within 8 miles.

The calculated values shown in Table 2 are an index of relative potential visibility, and have no meaning in and of themselves. However, they do allow sites within 10 miles of the trail to be ranked, and indicate which ridgelines have greater or lesser degrees of potential scenic sensitivity (though it is important to remember the limitations of this viewshed analysis). As would be expected, there is a strong relationship between proximity to the trail and potential visibility. Sites contiguous with the trail has a median viewshed index score of 32, whereas the median value for sites within 3 miles of the trail was 21 and for sites within 8 miles of the trail the median value was 6. The greatest concentrations of high-scoring sites were in the 100-Mile Wilderness (Whitecap Mountain range) and Western High Mountains region.

- Significant scenic resources. 232 of the 267 sites (87%) have at least one significant scenic resource within three miles, though 157 sites (59%) have two or fewer resources within three miles. Seventeen sites (6%) have six or more, 14 of which lie in either Baxter State Park or the 100-Mile Wilderness.

  Admittedly this assessment does not provide the full picture as to the scenic significance of a particular ridgeline. For example, two mountains widely recognized for their scenic value (Big Spencer and Tumbledown [north of Weld]) contain no listed scenic resources within three miles[45]. Several others contain only one, including the numerous ridgelines within Acadia National Park (which have the park itself within three miles[46]) and several major peaks along the Appalachian Trail (Mount Carlo, Goose Eye, Spaulding and Sugarloaf, which have only the trail itself within three miles). All of these are off-limits to development, so the point is somewhat moot, but it does illustrate the limitations of the assessment. However, the assessment does provide an initial approximation of those ridgelines that are located in close proximity to a high concentration of scenically significant features.

Relationship between individual resources and conservation status

There is a strong relationship between the presence of natural resource features considered in this analysis and the conservation status of the ridgelines. Table 4 shows the proportional distribution of sites overlaying a particular resource feature by conservation status[47]. For all resources except ridgeline ponds, Reserve lands encompass a disproportionately high share of the sites overlaying that feature.

Table 5 shows the percentage of sites within conservation status categories that overlay various resource features. For every resource feature, the proportion of sites on Reserve lands overlaying

[45] Both of these sites would contain viewpoints on public reserved lands, which is a category listed in the statute but which was not included in this analysis.
[46] Scenic coastal viewpoints, another category included in the statute but not this analysis, would likely be located within three miles of most if not all of these peaks.
[47] Only ridgelines in Reserve or Private status are shown; these encompass about three-quarters of all ridgelines and represent the extreme ends of the conservation status scale.

that feature is higher than the proportion of sites on Private land overlaying that feature. For many features the differences are dramatic - for example, 87% of the Reserve land sites but only 8% of the Private land sites lie at least partially within a Beginning With Habitat focus area, and 71% of the Reserve land sites but only 8% of the Private land sites are accessed by a hiking trail.

Table 4. Proportion of sites containing particular resource features by conservation status[48].

Resource feature	Percent of sites overlaying resource feature	
	Reserve land	Unrestricted private land
All sites	26	49
Site extends above 2700'	33	41
Site extends above 3500'	43	23
Current plant or community EOs	56	20
BWH focus area	66	12
Documented rare animal species	50	18
TNC priority summit	63	12
100% in roadless area	74	14
>50% Bicknell's thrush habitat	35	39
≥33% steep slope (ridgeline only)	45	42
Ridgeline pond	25	44
Hiking trail	57	11
Top 1/3 of AT viewshed scores	38	22
≥3 significant scenic features	36	36

Table 5. Proportion of sites of different conservation status that contain resource features[49].

Resource feature	Percent of sites overlaying resource feature		
	All sites	Reserve land	Unrestricted private land
Site extends above 2700'	48	60	40
Site extends above 3500'	16	27	8
Current plant or community EOs	25	53	10
BWH focus area	35	87	8
Documented rare animal species	8	16	3
TNC priority summit	19	46	5
100% in roadless area	24	69	7
>50% Bicknell's thrush habitat	25	33	20
≥33% steep slope (ridgeline only)	28	49	25
Ridgeline pond	6	6	5
Hiking trail	33	71	8
Top 1/3 of AT viewshed scores	17	24	8
≥3 significant scenic features	40	54	30

[48] The entries in this table should be read horizontally. For example, of all the sites that extend above 3500 feet, 43% are on Reserve land while 23% are on Private land.

[49] The entries in this table should be read vertically. For example, of all the sites on Reserve land, 60% extend above 2700 feet, 27% extend above 3500 feet, etc.

Composite Resource Value

All resources weighted equally

The composite resource scores resulting from considering all resources equally show a strong concentration at the lower end of the scale (Table 6), with ever-decreasing numbers of sites as one moves up the scale. Over half the sites scored less than 2 and about three-quarters scored less than 3. The three sites that scored above 7 include two sites in the Bigelow Range (The Horns and Bigelow Mountain) and Old Speck Mountain in the Mahoosucs. The state's highest peak, Mount Katahdin, ranked fourth.

Table 6. Distribution of sites by composite resource score (all resources equally weighted) and conservation status groups.

Composite Resource Score	Number of sites (percent of sites within conservation status group)				
	All sites	Conservation land (Reserve and Other)	Easement Land	Mixed Ownership	Private Land
0 – 1	82 (31%)	3 (4%)	4 (24%)	7 (16%)	68 (52%)
1 – 2	68 (25%)	6 (8%)	8 (47%)	15 (35%)	39 (30%)
2 – 3	47 (18%)	16 (21%)	5 (29%)	12 (28%)	14 (11%)
3 – 4	26 (10%)	15 (19%)		3 (7%)	8 (6%)
4 – 5	23 (9%)	19 (25%)		3 (7%)	1 (1%)
5 – 6	11 (4%)	9 (12%)		2 (5%)	
6 – 7	7 (3%)	6 (8%)		1 (2%)	
7 - 8	3 (1%)	3 (4%)			

The clear distinction in the distribution of individual resources between conservation and private lands is strongly present in the composite scores as well. Over half of the private land sites, but only three sites on conservation land, scored less than 1. Over 80% of the private land sites, but only 12% of the conservation land sites, scored less than 2. At the other end of the scale, 49% of the conservation land sites, but only a single private land site (Number Six Mountain), scored higher than 4. The distribution of scores for sites on conservation easement lands is similar to that for private lands, while the distribution for sites of mixed ownership is similar to that for sites fully on conservation land.

This pattern is not surprising, as conservation of mountains has tended to focus on those areas with the greatest resource value. However, the fact that ridgelines have been conserved can also enhance their value over time in several ways. Roadless areas are more likely to be maintained, hiking trails more likely to be constructed, and Natural Heritage surveys more likely to be conducted on land that has been conserved.

The distribution of scores by rank order (Fig. 1) shows that scores gradually increase, with values at the upper end of the scale increasing more rapidly, reflecting the higher scores of the state's most significant mountains. Below the upper end of the scale there are no clear inflections or break points that could separate higher-value from lower-value sites.

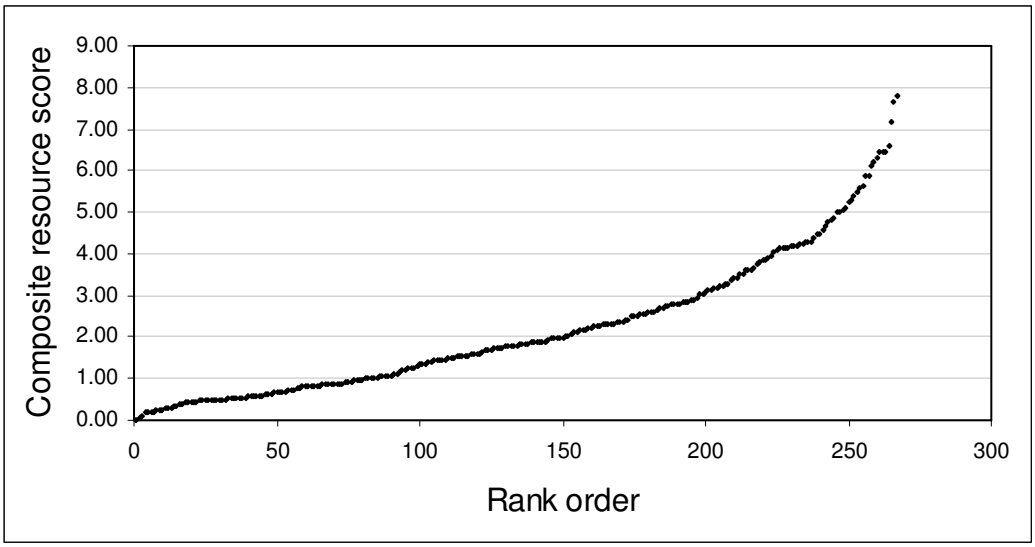

Figure 1. Distribution of composite resource scores (all resources weighted equally) by rank order.

Weighted without scenic

The second approach to assessing composite resource value included ten of the twelve resource categories, differentially weighted as described on page 11, but excluded the two scenic resource categories.

The results of this approach are not noticeably different than the approach of weighting all resources equally. There is a high degree of correlation between both the scores and rankings resulting from the two approaches (r^2 of 0.95 and 0.93 respectively). While sites move up or down in the rankings to varying degrees between the two approaches, most remain in the same general part of the rankings. Twenty-three of the top 28 sites, 52 of the top 59, and 94 of the top 100 are the same for both scoring systems. The two scenic resource categories, while they contribute to the evaluation when all resources are considered, are not a dominant part of the result. Using different weightings would not change the results significantly.

This indicates that the evaluation of the value of various sites is relatively insensitive to how the resources are scored. What is important is the presence or absence of important resource values. Sites that end up at the top of the rankings contain multiple resource values, and sites at the bottom of the rankings lack them. Changing the way in which these resources are scored will alter the relative value of different sites to some degree (in ways that for the most part are not particularly meaningful) but will not alter the overall pattern of resource value that emerges from the evaluation.

Spatial Patterns and Development Potential

There is a clear spatial pattern in the distribution of high-scoring sites (based on all resources weighted equally). Of the 28 highest-scoring sites (scores above 4.46), 27 are concentrated in

four areas – the Mahoosucs, the Western High Mountains, the 100-Mile Wilderness, and Baxter State Park. To a large degree they represent a list of the state's most iconic mountains[50]:

- *Mahoosuc Range*: Goose Eye, Fulling Mill, Old Speck, North Peak, Mahoosuc, Baldpate
- *Western High Peaks*: Saddleback, The Horn, Saddleback Junior, Abraham, Spaulding, Sugarloaf, Redington, Crocker, Cranberry Peak, The Horns, Bigelow, Little Bigelow
- *100-Mile Wilderness*: Barren, Columbus, Whitecap
- *Baxter State Park*: Mount Katahdin, Howe Peaks, North Brother, Mount O-J-I, Doubletop, Barren
- *Other*: Tumbledown (T6 north of Weld)

This concentration of high-scoring sites in a few areas continues down the scale. Fifty-five of the 59 highest-scoring sites (scores greater than 3.30), and 83 of the top 100 (scores greater than 2.33), are concentrated in seven areas – the four previously mentioned plus the White Mountain National Forest, Acadia National Park and the northern Boundary Mountains (Map 3).

Of these seven areas, the northern Boundary Mountains (extending from Sisk Mountain across Kibby to the Tumbledown range south of the Moose River) is the only one where sites lie primarily on private land. Sites in the other areas are either completely conserved (Baxter State Park, Acadia National Park), almost completely conserved (White Mountain National Forest, Mahoosuc Range) or located in areas of high conservation interest with a significant component of conservation land (the 100-Mile Wilderness, Western High Mountains). The latter two areas contain extensive high-value ridgeline in private ownership, but ongoing conservation activity could lead to additional conservation of sites in these areas in coming years.

Of these top 100 sites, the majority are located entirely on conservation land, are located outside the expedited permitting area, or both (Table 7). Only two sites – Moxie Mountain and Burnt Hill (the eastern ridgeline of Sugarloaf Mountain) - lie entirely on private land within the expedited permitting area.

Table 7. Distribution of the top 100 scoring sites by conservation and expedited permitting status.

Conservation Status	Expedited permitting area			Total
	In	Partial	Out	
Totally conserved	13	3	51	67
Mixed ownership	5	6	3	14
Private land	2	5	12	19
Total	20	14	66	100

Of these 100 highest-scoring sites, only Kibby Mountain is the location of an operating wind farm. However, the wind project is located at the southern end of this long ridgeline, to a large degree outside of the features which give Kibby its high score (including extensive high-

[50] Though these sites are concentrated along the Appalachian Trail, the same 27 sites are at the top of the list if the Appalachian Trail viewshed is eliminated from the scoring (though with the trail still included in the hiking trails category).

elevation land, the presence of a rare subalpine forest natural community and potential Bicknell's thrush habitat, and its location within a large roadless area). One other site (Sisk Mountain) is the location of a proposed expansion of the Kibby project whose permit application was recently approved by LURC. Two sites (Redington Pond Range and Black Nubble) were the location of a project whose application was denied by LURC[51].

At the other end of the scale, there are 63 sites totaling 147 miles of ridgeline (about 22% of the total) that meet the following criteria:

- Composite resource score less than 2.
- Private or mixed ownership; if in mixed ownership then the portion on conservation land does not lie within a state or national park, wilderness or reserve area[52].
- More than half of length within the expedited permitting area[53].

As with higher-scoring sites, the majority of these sites are clustered in a relatively small number of areas (Map 4):

- The Androscoggin Valley region of southern Oxford and Franklin counties (generally within 15 miles of Rumford).
- The eastern Coburn Mountain region.
- The Sandy Bay Township region at the northern end of Route 201.
- The southern Chain of Ponds region at the northern end of Route 27.
- South and east of Carrabassett Valley (primarily Highland Plantation).

Three of these 63 sites have operating wind power projects (Mars Hill and the two Kibby Range sites). Three others are the location of permitted projects (Record Hill and Flathead Mountain in Roxbury and Spruce Mountain in Woodstock), and four others are sites of projects that have submitted permit applications to LURC (three sites in Highland Plantation) or DEP (Saddleback Mountain in Carthage).

Of these 63 sites, how many may be suitable for development is difficult to determine. Many may have limitations related to topography, road access, transmission capacity or the availability of land. The level of local support or opposition is unknown. Some may contain significant ecological features that will not be known until site-specific analyses are conducted[54]. And while none possess the multiple resource values that put them at the upper end of the scale, some contain specific resource values that may present significant conflicts with development. (For example, both Puzzle and Long Mountains within the Mahoosuc region contain parts of the Grafton Loop hiking trail.)

[51] The Appalachian Mountain Club supported the Kibby Mountain project and opposed the Redington/Black Nubble and Sisk Mountain (Kibby expansion) projects.
[52] Of the 63 sites, 58 lie entirely in private ownership.
[53] Of these 63 sites, 54 lie entirely within the expedited permitting area.
[54] For example, the presence of high-quality occurrences of the rare Fir-Heartleaved Birch Subalpine Forest natural community on both Black Nubble and Sisk Mountain was not documented until field surveys were conducted by the developers.

The inclusion of the Highland Plantation area as a potentially low conflict site provides the best example of the limitations of this analysis. Three of these sites (Stewart Mountain, Witham Mountain and Burnt Hill) are included in the proposed Highland Plantation wind power development. Though the analysis scored these sites as having relatively low resource value, a number of significant issues have arisen during permitting review. In addition to concerns about visual impact (see the discussion of Stewart Mountain in the next paragraph), potential impacts to three state-listed Endangered, Threatened or Special Concern species and three Significant Wildlife Habitats have been identified. Information on the presence of these resources was not available for inclusion the analysis.

A particular area of uncertainty in the potential of these sites for development is the scenic impact, which can only be evaluated by more detailed site-specific analyses. The scenic analysis included in this assessment is admittedly rudimentary. An example of this is Stewart Mountain, one of the sites within Highland Plantation for which a development application is currently under review. Though Stewart Mountain's composite resource score is quite low, the proposed project has generated considerable controversy because of the potential scenic impact on the Appalachian Trail within the Bigelow Preserve. The potential for this type of controversy is indicated by the fact that Stewart Mountain has the second highest Appalachian Trail viewshed score of all private land sites within the expedited permitting area. However, this score does not adequately reflect the actual impact, as it does not encompass the full range of factors that go into a comprehensive scenic evaluation, such as the significance of the viewpoints, the nature of the landscape, the expectations of the viewers, and the severity of the visual impact[55].

Of the remaining 104 sites (those not highlighted on either Map 3 or 4), few if any appear to be potential candidates for development at this time. Twenty seven lie entirely on conservation land. Another 62 lie entirely outside the expedited permitting area, while nine more have less than half of their length within the area. Three lie along the Appalachian Trail, and Mount Blue mostly in a state park. That leaves just two small sites – unnamed ridgelines in Gilead (lying partially within the White Mountain National Forest) and Carrabassett Valley (directly south of the Bigelow Preserve).

Statewide development goals and cumulative impacts

The Maine Wind Energy Act, first passed in 2004 and subsequently amended, sets forth ambitious goals for wind energy production in Maine: 2,000 MW of installed capacity by 2015, 3,000 MW of installed capacity by 2020 (of which 300 MW will be offshore), and 8,000 MW of installed capacity by 2030 (of which 5,000 MW will be offshore). The information developed in this study allows a preliminary assessment of what a buildout of 2,000 to 3,000 MW of terrestrial capacity would look like on the landscape.

Currently there are 473 MW of capacity that are operating or which have been permitted, although some projects are still under appeal (Table 1). If all of the permitted projects are constructed, the state would need an additional 1527 MW to meet the 2015 goal and an additional 2527 MW to meet the 2030 goal.

[55] This project was revised from the original version to remove some of the turbines on Stewart Mountain due to visual impact on the Appalachian Trail. The application for the project was subsequently withdrawn.

In assessing whether the state can meet these goals, and what types of cumulative impacts might result if they are met, there are at least three major unknowns: 1) whether a large project proposed for low hills and fields of northern Aroostook County (variously described as 350 to 500 MW) is developed, 2) how many of the sites included in this analysis are realistic candidates for development, and 3) how many additional sites not included in this analysis are available for development. (About 40% total capacity of the nine projects that have been permitted is at sites not included in this analysis, but it is not known whether this proportional distribution will hold true as additional sites are developed.)

In the analysis that follows, we assume that development will take place only within the expedited permitting area, and that all sites identified in this study are developable (though this is certainly optimistic). We considered two scenarios:

- Pessimistic: Large Aroostook County project is not developed; development takes place only on sites identified in this analysis.
- Optimistic: 500 MW project in Aroostook County is developed; development takes place on additional sites not identified in this analysis in the same proportion as existing permitted projects (60% at sites included in this analysis, 40% at other unidentified sites).

We started with the 63 previously identified sites on private land within the expedited permitting area that have cumulative resource values scores less than 2. We excluded six of these sites that have already permitted projects (two Kibby Range sites, Mars Hill, Spruce Mountain, and Record Hill/Flathead Mountain), two sites where development would be prohibited by the Moosehead Legacy easement, and the two sites traversed by the Grafton Loop Trail (Long and Puzzle mountains). That left 53 sites totaling 120 miles of ridgeline[56]. If developed at an average density of 11.5 MW/mile, an additional 1377 MW of capacity would be added, for a total of 1850 MW including operating and permitted projects.

The conclusion to the pessimistic scenario is in fact pessimistic: *Developing every potentially available site identified in this analysis would be insufficient to meet the state's 2015 goal and would fall well short of the 2030 goal*[57].

Under the optimistic scenario, in which the large Aroostook County project contributes 500 MW, 1027 additional MW would be needed to meet the 2015 goal, and 2027 MW to meet the 2030 goal. We assume sixty percent of this would come from sites included in this analysis, or 616 MW by 2015 and 1216 MW by 2030. *Even under this very optimistic scenario, nearly 90% of the potentially available ridgeline identified in this analysis would be needed to meet the 2030 goal.* An additional 811 MW would need to be developed by 2030 at other unidentified sites.

In order to assess the potential cumulative impact on the state's scenic landscape, we deleted five additional sites that could be particularly controversial[58]. The remaining 48 sites encompass

[56] These are the sites shown in Figure 4, minus the 10 sites excluded as described in this paragraph.
[57] Even if the four remaining private land sites within the expedited permitting area (Long, Puzzle and Moxie mountains and Burnt Hill) were included, the total would only rise to 2041 MW – still far short of the 2030 goal.
[58] Stewart Mountain (Highland Plantation), Deer Mountain (west of Cupsuptic Lake), East Kennebago Mountain (western ridge), Ragged Mountain (Rockport) and Perry Mountain (south of Saddleback).

about 108 miles, which would provide 1236 MW of capacity – enough to meet the 2030 goal under the optimistic scenario. At this level of development, the Androscoggin Valley and Route 201 corridors would see major development (Map 5). One or more projects would lie within eight miles of many major viewpoints in the Western Mountains region, including Bigelow Mountain, Saddleback Mountain, Mount Abraham, Mount Blue, Tumbledown Mountain (near Weld), Bald Mountain (Rangeley), Big Moose Mountain and parts of the Mahoosuc Range. Over 70 percent of the Appalachian Trail between the New Hampshire border and the Kennebec River would lie within eight miles of a project, as would the southern part of Moosehead Lake and the eastern parts of the Rangeley and Attean lakes. While projects would not be visible from all areas within the eight-mile buffers, it is likely that many significant viewpoints would have one or more projects visible within their viewshed. Changing which projects were excluded from this analysis would alter the specific areas affected but would not significantly change the magnitude of the impact.

There are two reasons why this analysis significantly understates the potential level of impact:

– Wind power projects do not become invisible at a distance of eight miles. For example, on clear days the Kibby Mountain project can be clearly seen from the summit of Bigelow Mountain at a distance of eighteen or more miles. As stated in a report from the National Academy of Sciences:

"Modern wind turbines of 1.5-3 MW can be seen in the landscape from 20 miles away or more (barring topographic or vegetative screening), but as one moves away from the project itself, the turbines appear smaller and smaller, and occupy an increasingly small part of the overall view. The most significant impacts are likely to occur within 3 miles of the project, with impacts possible from sensitive viewing areas up to 8 miles of the project. At 10 miles away the project is less likely to result in significant impacts unless it is located in or can be seen from a particularly sensitive site or the project is in an area that might be considered a regional focal point. Thus, a 10-mile radius provides a good basis for analysis including viewshed mapping and field assessment for current turbines. In some landscapes a 15-mile radius may be preferred if highly sensitive viewpoints occur at these distances, the overall scale of the project warrants a broader assessment, or if more than one project is proposed in an area."[59]

If a 15-mile buffer is used, the potential area of impact encompasses the entire Western Mountains region from the New Hampshire border to Moosehead Lake, including large regions outside of the expedited permitting area (Map 6).

– Meeting the remaining part of the 2030 goal (the portion to be developed at sites not included in this analysis) would require an additional 800+ MW – the equivalent of nearly 20 Mars Hill-sized projects. While it is unknown where these projects might be located, their development would either expand the proportion of the state in proximity to a project or increase the density of projects within viewsheds.

[59] National Academy of Sciences. 2007. *Environmental Impacts of Wind-Energy Projects.* Committee on Environmental Impacts of Wind Energy Projects, National Research Council. Page 101.

DISCUSSION

This analysis represents the first comprehensive evaluation of Maine's mountain resources. It is similar in many ways to the Maine Rivers Study and Maine Wildland Lakes Assessment/Maine Lakes Study of the 1980s, which were undertaken for the purpose of better understanding the resource values of the state's rivers and lakes, guiding development to appropriate locations, and protecting the important values of the most significant rivers and lakes. This study was undertaken for similar purposes.

The analysis does not include all potential wind power development sites in the state. Two existing projects (Stetson Mountain I and II), two permitted projects (Oakfield and Rollins), two projects under permitting review (Bowers Mountain and Bull Hill) and other sites that are under consideration were not included in the analysis because they did not contain sufficient Class 4 wind resource in the data used to delineate study sites. However, any site not included in the analysis can be evaluated by the same methods and its place on the composite resource scale determined[60].

This study is not the final word on the value of specific sites and their relative suitability for wind power development, but rather a starting point. ***It is critical that readers understand that identification of a site as having low resource value in this analysis does not constitute a finding that they are suitable for development.*** It would be clearly inappropriate to draw a line at some point on the composite resource value scale and state that sites above this score were suitable for development and those below it were unsuitable. The resources included in this analysis do not provide a complete picture of any particular site, and additional site-specific information (including ecological field studies and scenic assessment) is critical to a full evaluation of any particular site. Other information (such as topographic suitability, the availability of land, road access, available transmission capacity, and degree of local support) is also critical but beyond the scope of this analysis.

However, the information developed in this study is valuable for several reasons. First, it provides a picture of what known factors may conflict with development at any particular site. Second, it identifies a number of areas where there are concentrations of sites with multiple known resource values, and where landscape-level conservation should take priority over renewable energy development[61]. Third, while the information has somewhat limited value for distinguishing between sites in the middle of the resource value scale, it does a good job of distinguishing between high-value sites at one end of the scale and *potentially* lower value (and potentially low conflict) sites at the other end of the scale. The information can thus help narrow the range of conflict over what types of sites (and what parts of the state) are suitable for development.

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[60] Stetson I and II, Oakfield and Rollins all score at the very low end of the scale when the analysis is applied to those sites.

[61] Of the three high-value regions identified on Map 3 that have a considerable extent of ridgeline on private land, two (the Western High Mountains and the 100-Mile Wilderness) are already areas of high conservation interest. The third (the northern Boundary Mountains) is somewhat of an anomaly in that it is a high-value mountain area that has seen little conservation activity, though one grassroots organization (Friends of the Boundary Mountains) has been advocating for greater conservation in this region since the 1990s.

The delineation of the expedited permitting area by the Governor's Task Force and its subsequent adoption by the legislature represents a determination of what parts of the state are most appropriate for consideration of wind power development at a broad landscape scale. This analysis indicates that the delineation is generally appropriate, at least for ecological values. (Potential scenic impacts are more problematic.) Sites outside the expedited area are generally of high value, encompassed within high value regions or areas with a high potential for conflict, or remote from transportation and transmission corridors. Of the 19 sites lying entirely on private land that scored in the top 100 of the composite resource scale, only two (Moxie Mountain and Burnt Hill [the eastern ridge of Sugarloaf Mountain]) are located entirely within the expedited permitting area[62]. On the flip side, of the 68 sites lying entirely on private land with composite resource scores of less than 1.00, over half (39) are located within the expedited permitting area.

An assessment of the state's ability to meet its 2030 goal of 3,000 MW of installed capacity presents a pessimistic picture. Even under a very optimistic scenario (which assumes that a 500 MW project will be built in Aroostook County and 800 MW will be developed at sites not included in this analysis), nearly all of the sites in this analysis with relatively low resource value on private lands within the expedited permitting area would need to be developed to meet this goal. Clearly not all these sites can, should or will be developed, and it is not clear where the many additional sites necessary to meet the 2030 goal will be found.

This level of development would likely lead to one or more projects being visible from most of the significant viewpoints in the Western Mountains region. The Androscoggin Valley of southern Oxford and Franklin counties could see a particularly high concentration of development; the area already has multiple projects that are in various stages of planning or permitting. It is clear that meeting the state's 2030 goal will require a very significant transformation of the state's landscape, one in which wind power projects become a common part of the landscape from even relatively remote and undeveloped viewpoints. Whether this was fully understood when the goal was adopted is not clear, and whether Maine's citizens will support it once the consequences of the goal are better known is an open question.

There are at least two areas where more complete information would greatly enhance the value of this analysis. The most controversial ecological issue in previous wind power permit applications has been the presence of high-elevation subalpine forest[63]. Undisturbed examples of this community are rare in the state, with only 19 occurrences documented by the Maine Natural Areas Program[64]. This community provides the primary habitat for Bicknell's thrush[65]. These areas may also have important adaptive value by maintaining a component of coniferous forest habitat in a warmer future climate when this habitat has been reduced or eliminated at lower elevations. While the most significant occurrences of this community are well-documented and mostly conserved, there are very likely additional areas on high-elevation private lands where

[62] Two other sites (Kibby Mountain and Sisk Mountain) have more than a third of their length within the expedited area. Both of these are the site of permitted projects.
[63] Classified as Fir-Heartleaved Birch Subalpine Forest and ranked S3 (Rare) by the Maine Natural Areas Program.
[64] These occurrences were included in the analysis in the Natural Heritage Inventory Element Occurrences category.
[65] The Potential Bicknell's Thrush Habitat data included in this analysis is a fairly broad delineation, essentially including all softwood forest above 2700 feet in the state. The subalpine forest community, which provides the most critical habitat for Bicknell's thrush, is a fairly small subset of this broader potential habitat.

this habitat has not been documented. This study identified 26 sites on private land within the expedited permitting area that extend above 2700 feet, encompassing about 24 miles of ridgeline[66] (Table 8), some of which could be a considered for development. A comprehensive inventory of this community and associated critical Bicknell's thrush habitat would be invaluable in pro-actively identifying sites that are unsuitable for development and reducing future controversy. Efforts to conduct such an inventory are currently being undertaken by AMC and others.

The second area is the need for a more comprehensive and rigorous analysis of the potential cumulative impacts on Maine's landscape (ecological, cultural and scenic) of the level of development necessary to meet the state's 2030 goal of 3,000 MW of installed terrestrial capacity. The Western Mountains region in particular is likely to be heavily altered by wind power development at this scale. This is a region prized for its scenic character and heavily dependent on the recreation and tourism economy. One of the three primary objectives of the Governor's Task Force on Wind Power Development was "To protect Maine's quality of place and natural resources." Whether this objective is compatible with the level of wind power development necessary to meet the Legislatively-established goals is a critical public policy question. The Land Use Regulation Commission has begun assessing the potential cumulative visual impact of wind power development within the unorganized territories and the regulatory tools that might be available to minimize this impact (such as clustering). However, since visual impacts (both individually and cumulatively) cross jurisdictional boundaries, such an assessment should include the entire state in order to provide a comprehensive picture.

Finally, though beyond the scope of this analysis, there is a need for continual effort to reduce the adverse affects of wind power development. Two recent developments are notable:

- The availability of FAA-approved technologies that use on-site radar to detect approaching aircraft, which allow nighttime warning lights to be turned on only when necessary, and which provide an audible warning to approaching aircraft, allowing turbines to be painted a more neutral color[67]. (A primary reason for the bright white color of turbines is to make them visible to approaching aircraft.)
- The use of higher turbine cut-in speeds to reduce bat mortality.[68] Research by Bat Conservation International has shown that slight changes to wind turbine operations at times of relatively low wind can result in significant reductions in bat mortality.

[66] By comparison, there is about 90 miles of privately owned ridgeline above 2700 feet outside of the expedited permitting area.
[67] One example is the Obstacle Collision and Avoidance System ("OCAS"); see http://www.ocasinc.com/turbine-avoidance-solutions.cfm.
[68] See for example http://www.batsandwind.org/pdf/Arnett%20et%20al.%202010%20-%20Changing%20Turbine%20Cut-in%20Speed.pdf.

Table 8. Privately-owned ridgeline above 2700 feet within the expedited permitting area. (Sites with less than 0.25 miles above 2700 feet are not shown.)

Site	Town	Miles >2700'	Notes
Sugarloaf Mountain/ Burnt Hill	Carrabassett Valley	3.5	<8 miles from Appalachian Trail (Bigelow Preserve)
Deer Mountain	Adamstown Twp	2.9	
Sandy Bay Mountain	Sandy Bay Twp	1.9	
Round Mountain	Alder Stream Twp	1.8	
East Kennebago Mtn. (western ridge)	Lang Twp	1.7	
Mount Pisgah	Chain of Ponds Twp	1.5	
Coburn Mountain	Johnson Mountain Twp	1.4	
Long Mountain	Newry/Andover	1.0	Crossed by Grafton Loop Trail
Beaver Mountain	Rangeley Plt	0.9	<8 miles from Appalachian Trail (Saddleback Mountain)
Puzzle Mountain	Newry	0.8	Traversed by Grafton Loop Trail
Saddleback Mountain	Sandy River Plt	0.8	<3 miles from Appalachian Trail (Saddleback Mountain)
Bag Pond Mountain	Alder Stream Twp	0.7	
Old Blue Mountain	Byron	0.7	Lower end of ridge; majority outside of EPA; <3 miles from AT
Big Moose Mountain	Big Moose Twp	0.7	
East Kennebago Mtn. (main ridge)	Lang Twp	0.6	Majority of ridge outside of EPA
Sandy Stream Mtn	Sandy Bay Twp	0.5	
Four Ponds Mountain	Rangeley Plt	0.5	<¼ mile from Appalachian Trail
Snow Mountain	Alder Stream Twp	0.4	Majority of site on conservation land or outside of EPA
Redington Pond Range	Carrabassett Valley	0.4	Majority of site outside of EPA; site of application rejected by LURC
Moxie Mountain	Caratunk	0.3	

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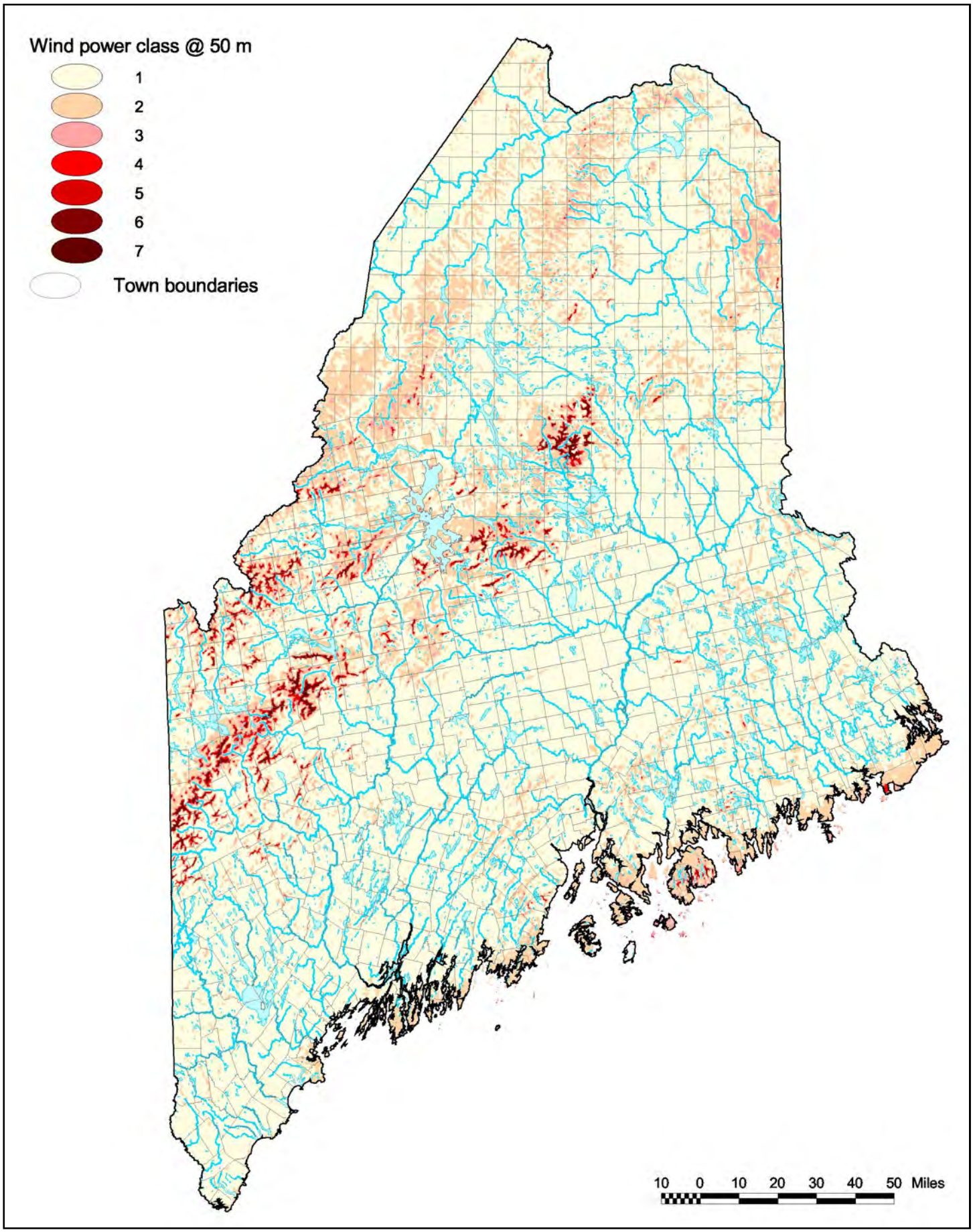
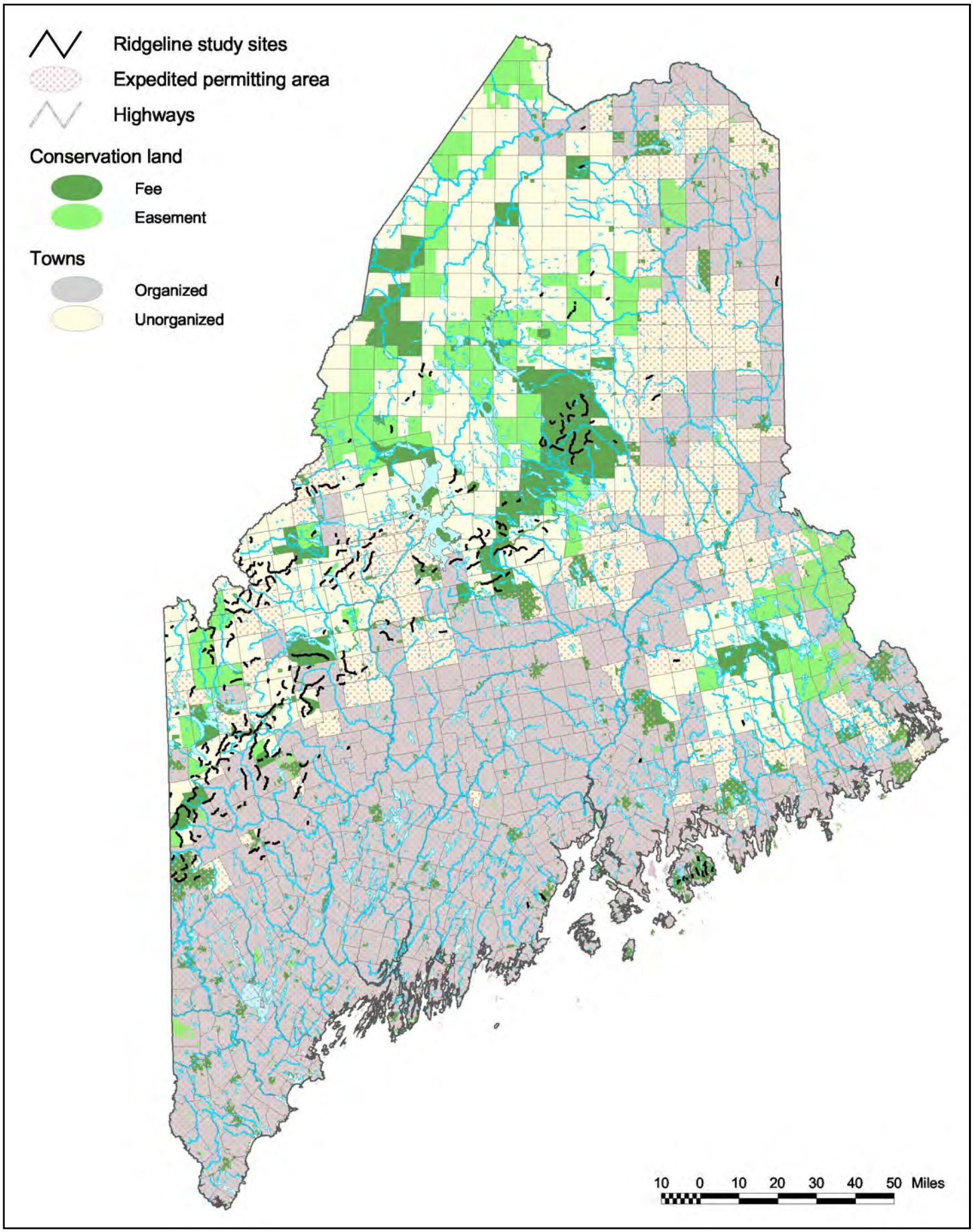
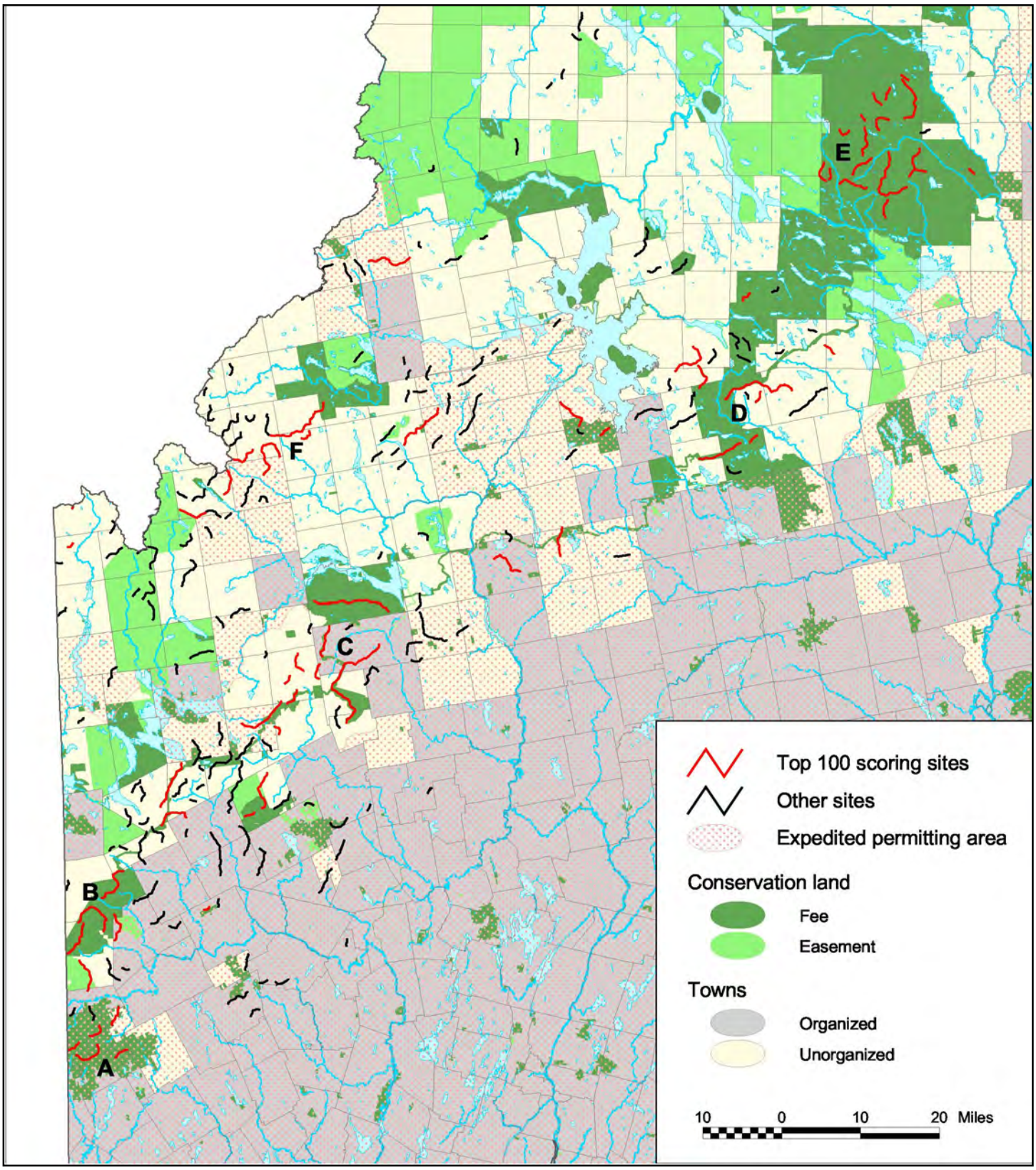


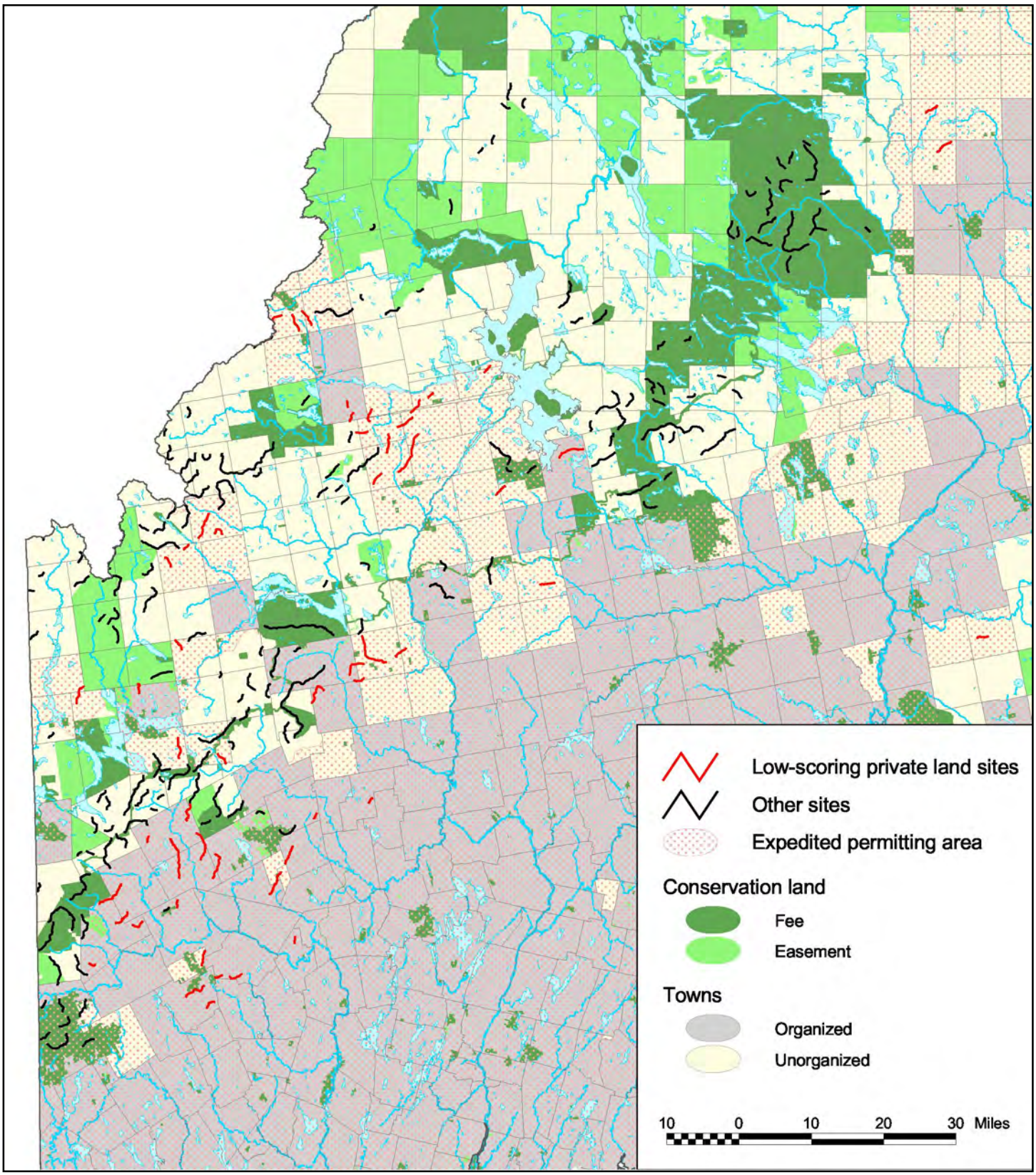
Map 1. Wind resource data used in the delineation of ridgeline study sites.



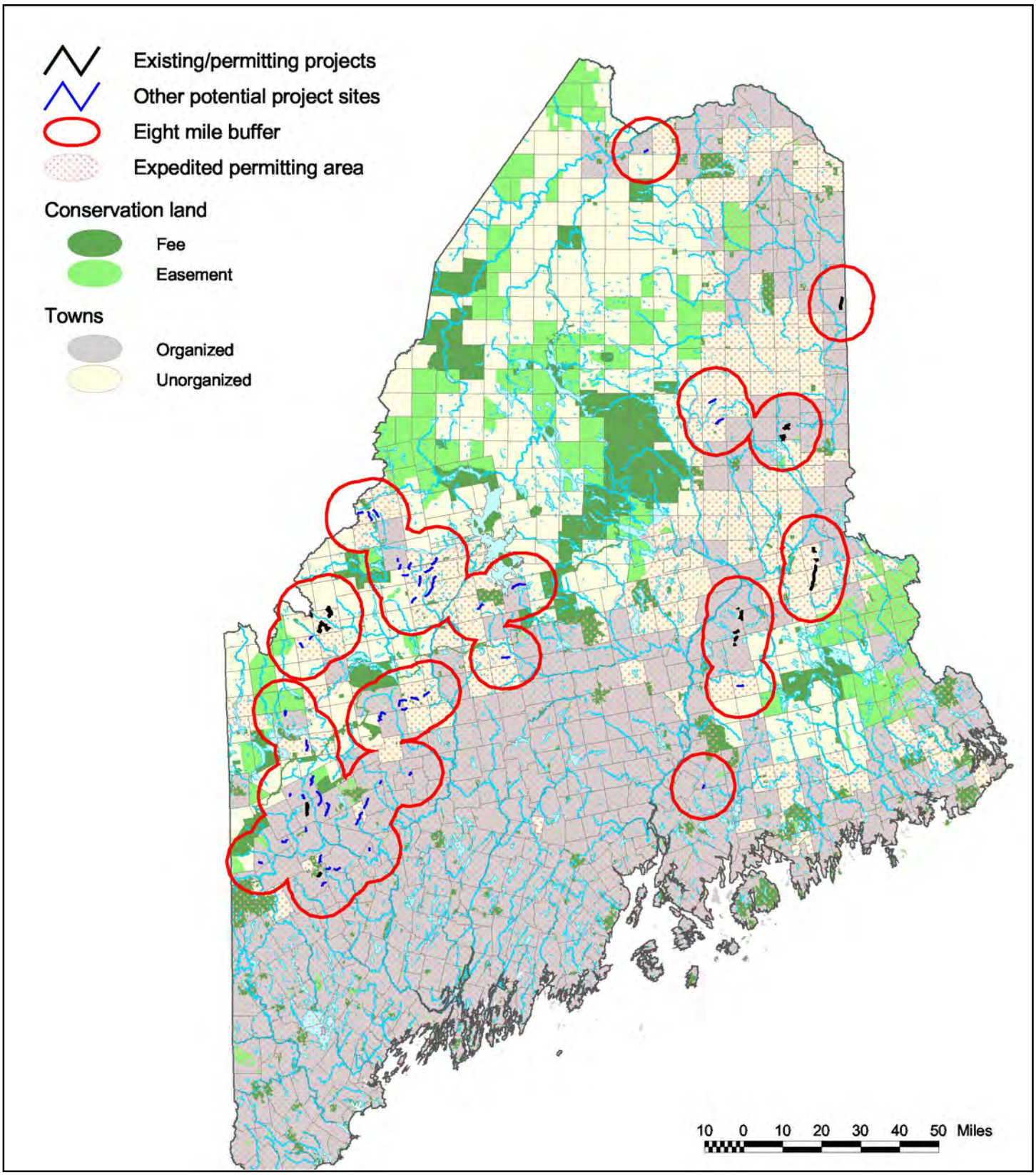
Map 2. Ridgeline study sites, encompassing 670 miles of ridgeline at 267 sites.



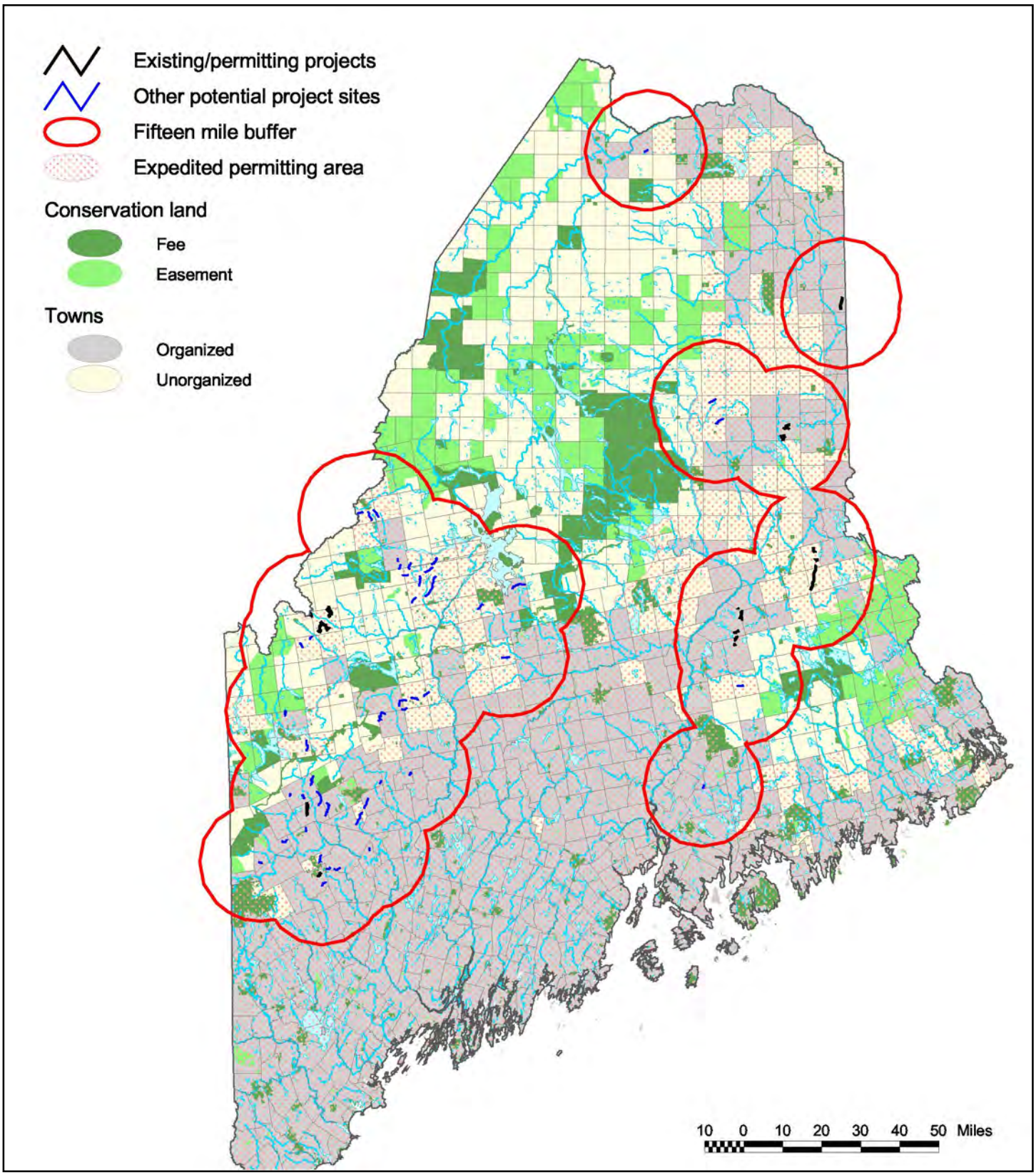
Map 3. The top 100 scoring sites in the composite resource analysis. The majority of these sites are concentrated in seven areas – White Mountain National Forest (A), Mahoosuc Range (B), Western High Mountains (C), 100-Mile Wilderness (D), Baxter State Park (E), northern Boundary Mountains (F) and Acadia National Park (not shown). (Map shows the area extending from the New Hampshire border to Baxter State Park. Only the high-scoring sites in Acadia National Park and Deboullie Mountain lie outside of this area.)



Map 4. Sites on private land within the expedited permitting area with a composite resource value score of less than 2. Three additional sites meeting these criteria lie beyond the extent of the map – Mars Hill, McLean Mountain in St. Francis and Ragged Mountain in Rockport.



Map 5. Eight-mile buffer around existing, permitted and potential projects that would provide sufficient capacity to meet state's 2030 goal of 3,000 MW of installed terrestrial capacity, assuming 1) a 500 MW project in northern Aroostook County is also developed, and 2) 800 MW of additional capacity at sites not included in this analysis is also developed.



Map 6. Fifteen-mile buffer around projects shown in Map 5.

Table 1.

Table 1 on the following pages shows the results of the resource overlay analysis for the 267 individual ridgeline study sites. Sites are arranged alphabetically by county, town and site name. Detailed information on the data can be found on pages 4 - 9.

- **Length (miles)**
- **% Expedited**: the proportion of the ridgeline that lies within the expedited permitting area.
- **% LURC**: the proportion of the ridgeline that lies within LURC jurisdiction.
- **% P-MA**: the proportion of the ridgeline that lies within a LURC Protection-Mountain Area zoning subdistrict.
- **% Conserved**: the proportion of the ridgeline that lies on conservation land (including Reserve, Other Conservation, and Easement).
- **Conservation status**: R – Reserve, OC – Other conservation, E – Easement, Pr – Private land, Mx – Mixed ownership. Sites marked with '*' would have all or part of their length on Plum Creek ownership protected from development under the terms of the Moosehead Legacy conservation easement.
- **Length above 2700' (miles)**
- **Length above 3500' (miles)**
- **Current community EOs**: number of rare (S1, S2 or S3) natural vegetation community Element Occurrences verified in the past 20 years that are intersected by the ridgeline.
- **Historic community EOs**: number of rare (S1, S2 or S3) natural vegetation community Element Occurrences not verified in the past 20 years that are intersected by the ridgeline.
- **Current species EOs**: number of rare (S1, S2 or S3) plant species Element Occurrences verified in the past 20 years that are intersected by the ridgeline.
- **Historic species EOs**: number of rare (S1, S2 or S3) plant species Element Occurrences not verified in the past 20 years that are intersected by the ridgeline.
- **% BwH Focus Area**: the proportion of the ridgeline that lies within a habitat focus area defined by the Beginning with Habitat program.
- **# RTE species**: the number of documented occurrences of rare, threatened or endangered animal species that are intersected by the ridgeline plus a 100-meter buffer.
- **% TNC summit**: the proportion of the ridgeline that lies within a Priority Summit Ecosystem identified by The Nature Conservancy's Northern Appalachian – Acadian Ecoregional Assessment.
- **% Roadless**: the proportion of the ridgeline that lies within a roadless area of greater than 5,000 acres identified by a previous AMC study.
- **% Bicknell's habitat**: the proportion of a 100-meter buffer around the ridgeline classified as potential Bicknell's thrush habitat in a model developed by the Vermont Institute of Natural Science.
- **% Steep (ridgeline)**: the proportion of a 25-meter buffer around the ridgeline with slope greater than 25% as determined from USGS 30-meter resolution Digital Elevation Model data.
- **% Steep (upper slope)**: the proportion of the area between 25 and 250 meters around the ridgeline with slope greater than 25% as determined from USGS 30-meter resolution Digital Elevation Model data.

- **Ridgeline pond**: the presence of a pond shown in USGS 1:100,000 Digital Line Graph data within 100 meters of the designated ridgeline. RP – Remote Pond; O – other pond.
- **Appalachian Trail**: T – site is traversed for most of its length by the Appalachian Trail; t- site is traversed for part of its length by the Appalachian Trail; X – site is crossed by the Appalachian Trail.
- **Other hiking trails**: T – site is traversed by a hiking trail (other than the Appalachian Trail); A – site is accessed by a hiking trail.
- **Trail access points**: number of separate access points (trailheads) from which trails lead to the site.
- **AT viewshed score**: an index (ranging from 0 to 100) indicating the potential visibility of the site from the Appalachian Trail. Scores were calculated for sites within 10 miles of the trail.
- **# Scenic features**: the number of scenically significant features (as defined by the 2008 Wind Siting Law) that lie within 3 miles of the site. Not all categories of scenically significant features defined by the law are included in this assessment.)
- **Composite score**: the composite resource value score with all resource categories weighted equally (see page 11).
- **Composite score rank**

TABLE 1

Site name	County	Town	Length (miles)	% Expedited	% LURC	% P-MA	% Conserved	Conservation status	Length above 2700' (mi)	Length above 3500' (mi)	Current Community EOs	Historic Community EOs	Current Species EOs	Historic Species EOs	% BwH Focus Area	# RTE species	% TNC summit	% Roadless	% Bicknell's habitat	% Steep (ridgeline)	% Steep (upper slope)	Ridgeline pond	Appalachian Trail	Other hiking trails	Trail access points	AT viewshed score	# Scenic features	Composite score	Composite score rank
Mars Hill	Aroostook	Mars Hill	2.8	100	0	0	0	Pr	0.0	0.0	0	0	0	3	0	0	0	0	0	26	70						0	0.64	222
McLean Mountain	Aroostook	Saint Francis	1.3	100	0	0	0	Pr	0.0	0.0	0	0	0	10	0	0	0	0	0	28	45						0	0.77	210
Peaked Mtn (T11 R8 WELS)	Aroostook	T11 R8 WELS	1.4	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	33	37						0	0.46	245
Deboullie Mountain	Aroostook	T15 R9 WELS	1.4	0	100	0	100	R	0.0	0.0	1	0	0	1	100	1	25	100	0	18	47			A	1		7	3.92	46
Chandler Mountain	Aroostook	T9 R8 WELS	1.2	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	87	0	0	18	71						1	1.54	153
Unnamed (Alder Stream Twp)	Franklin	Alder Stream Twp	1.1	100	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	1	14	58						3	0.65	221
Round Mountain	Franklin	Alder Stream Twp	1.8	100	100	100	0	Pr	1.8	0.0	0	0	0	0	0	0	0	61	25	41	82						2	1.96	121
Mount Blue	Franklin	Avon	3.1	100	0	0	45	Mx	0.6	0.0	1	0	0	0	91	0	0	0	14	27	66			A	1		2	2.14	112
Day Mountain	Franklin	Avon	1.1	100	0	0	0	Pr	0.0	0.0	1	0	0	3	0	0	0	0	0	36	68						1	0.96	189
Van Dyke Mountain	Franklin	Beattie Twp	1.3	0	100	43	0	Pr	0.6	0.0	0	0	0	0	0	0	0	0	53	68	72						0	1.52	155
Number Seven Mountain	Franklin	Beattie Twp	1.2	0	100	2	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	21	17	49						0	0.58	225
Unnamed (Carrabassett Valley)	Franklin	Carrabassett Valley	1.2	100	0	0	0	Pr	0.0	0.0	0	0	0	2	69	0	0	72	0	27	32					21	3	2.32	101
Sugarloaf Mountain	Franklin	Carrabassett Valley	2.7	100	0	0	46	Mx	2.7	1.5	0	1	0	2	100	1	68	81	85	26	56		T		2	44	1	5.88	12
Poplar Mountain	Franklin	Carrabassett Valley	3.4	100	35	0	0	Pr	0.0	0.0	0	0	0	2	0	0	0	85	4	9	49					8	0	1.33	168
Crocker Mountain	Franklin	Carrabassett Valley	4.5	100	0	0	54	Mx	3.1	1.6	1	0	0	2	100	0	14	99	64	26	51		T		2	50	3	5.23	18
Clay Brook Mountain	Franklin	Carrabassett Valley	1.7	100	53	0	0	Pr	0.0	0.0	0	0	0	2	0	0	0	0	0	21	54					2	0	0.51	235
Burnt Hill (Carrabassett Valley)	Franklin	Carrabassett Valley	4.0	100	0	0	0	Pr	1.9	0.4	0	0	0	2	52	0	34	100	45	20	39					16	1	3.27	61
Saddleback Mountain (Carthage)	Franklin	Carthage	3.8	100	43	0	16	Mx	0.0	0.0	0	0	0	0	0	0	0	0	0	22	79			A	1		1	0.80	209
Unnamed (Chain of Ponds Twp)	Franklin	Chain of Ponds Twp	1.6	0	100	11	0	Pr	0.2	0.0	0	0	0	0	0	0	0	100	23	9	54						3	1.83	131
Snow Mtn (Chain of Ponds Twp)	Franklin	Chain of Ponds Twp	3.9	10	100	71	60	Mx	2.8	1.0	0	0	0	0	0	0	0	100	11	24	55			A	1		3	2.41	95
Sisk Mountain	Franklin	Chain of Ponds Twp	3.9	34	100	81	0	Pr	3.2	0.0	1	0	0	0	0	0	0	52	82	24	54						3	2.56	89
Mount Pisgah	Franklin	Chain of Ponds Twp	3.5	48	100	35	0	Pr	1.2	0.0	0	0	0	0	0	0	0	56	35	28	54						2	1.70	143
Indian Stream Mountain	Franklin	Chain of Ponds Twp	3.0	0	100	13	7	Mx	0.4	0.0	0	0	0	0	0	1	0	98	5	39	58						2	2.18	110
Bag Pond Mountain	Franklin	Chain of Ponds Twp	2.4	31	100	87	0	Pr	2.1	0.0	0	0	0	0	0	0	0	72	30	38	76						4	2.26	107
Unnamed (Coplin Plt)	Franklin	Coplin Plt	1.6	0	100	0	14	Mx	0.0	0.0	0	0	0	1	0	0	0	0	0	5	30					42	1	0.71	214
Quill Hill	Franklin	Dallas Plt	1.0	0	100	35	0	Pr	0.3	0.0	0	0	0	0	0	0	0	0	5	21	59					7	1	0.69	216
Spotted Mountain	Franklin	Davis Twp	3.4	0	100	100	100	E	3.4	0.0	0	0	0	0	0	0	0	0	80	23	72						2	1.87	126
Kibby Range 2	Franklin	Kibby Twp	2.1	100	100	59	0	Pr	1.2	0.0	0	0	0	0	0	0	0	0	76	24	70						2	1.58	148
Kibby Range	Franklin	Kibby Twp	4.1	100	100	66	0	Pr	2.7	0.0	0	0	0	0	0	0	0	0	76	31	54						3	1.82	132
Owls Head	Franklin	Kingfield	1.9	100	0	0	0	Pr	0.2	0.0	0	0	0	3	0	0	0	0	19	37	75					9	0	1.06	180
Black Nubble (Kingfield)	Franklin	Kingfield	2.0	88	12	0	0	Pr	0.5	0.0	0	0	0	1	0	0	0	0	37	39	62					8	0	1.17	175
East Kennebago Mountain 2	Franklin	Lang Twp	1.8	95	100	97	0	Pr	1.7	0.6	0	0	0	0	0	0	0	0	79	43	51						1	1.74	140
Clear Pond Mountain	Franklin	Lowelltown Twp	1.8	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	88	0	18	43						0	1.23	172
Unnamed (Madrid)	Franklin	Madrid Twp	1.7	14	100	0	0	Pr	0.0	0.0	0	0	0	0	100	0	0	100	0	1	3					34	2	2.53	91
The Horn	Franklin	Madrid Twp	1.3	0	100	100	100	R	1.3	1.2	3	0	1	0	100	0	88	100	100	52	79		T		2	24	1	6.44	5
Unnamed (Massachusetts Gore)	Franklin	Massachusetts Gore	7.6	0	100	41	100	E	3.1	2.4	0	0	0	0	0	0	69	0	7	18	42						2	1.96	120
Smart Mountain	Franklin	Merrill Strip Twp	4.9	0	100	81	0	Pr	4.0	0.0	0	0	0	0	0	0	0	0	58	38	74						0	1.69	144
Merrill Mountain	Franklin	Merrill Strip Twp	1.8	0	100	92	0	Pr	1.7	0.0	0	0	0	0	0	0	0	0	89	40	81						0	1.79	134
Spaulding Mountain	Franklin	Mount Abram Twp	1.6	12	88	91	100	R	1.6	0.9	0	0	0	2	100	0	68	36	100	40	53		T		2	34	1	4.99	22

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Mount Abraham	Franklin	Mount Abram Twp	7.6	0	100	83	93	R	6.3	2.8	5	0	3	1	100	0	49	74	60	28	50		t	T	3	17	2	6.28	8
Griffin Mountain	Franklin	New Vineyard	1.1	100	0	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	57	89						0	0.91	194
White Cap Mountain (Oxbow Twp)	Franklin	Oxbow Twp	5.8	0	100	97	78	Mx	5.6	1.6	0	0	0	0	0	0	8	0	29	25	46						1	1.69	145
Ephraim Ridge	Franklin	Rangeley	1.6	79	21	0	21	Mx	0.0	0.0	0	0	0	1	0	0	0	0	4	16	75						4	0.88	196
Spruce Mountain (Rangeley Plt)	Franklin	Rangeley Plt	4.0	77	100	5	50	Mx	0.2	0.0	0	0	0	1	0	0	0	0	17	7	16		X		2	26	5	1.37	166
Four Ponds Mountain	Franklin	Rangeley Plt	1.5	100	100	35	5	Mx	0.5	0.0	0	0	0	1	0	0	0	0	37	11	33		T		2	48	3	1.93	123
Beaver Mountain	Franklin	Rangeley Plt	3.3	100	100	26	0	Pr	0.9	0.0	0	0	0	1	0	0	0	0	29	12	27	O				14	4	1.46	161
Saddleback Junior	Franklin	Redington Twp	2.6	0	100	88	100	R	2.3	0.2	1	0	0	0	100	0	0	100	85	40	57		T		2	37	3	5.01	21
Redington Pond Range	Franklin	Redington Twp	2.5	16	84	82	36	Mx	2.5	1.8	1	0	0	2	100	1	0	87	91	26	37					41	3	4.86	23
Black Nubble 2 (Redington Twp)	Franklin	Redington Twp	1.4	0	100	0	100	OC	0.0	0.0	0	0	0	0	100	0	0	100	0	29	27					17	3	2.80	78
Black Nubble (Redington Twp)	Franklin	Redington Twp	3.1	0	100	78	0	Pr	2.4	0.3	1	0	0	0	85	0	0	0	47	29	48					16	3	2.65	85
Farmer Mountain	Franklin	Salem Twp	3.4	0	100	23	0	Pr	0.8	0.0	0	0	0	0	100	0	0	0	24	18	39					11	1	1.86	129
Unnamed (Sandy River Plt)	Franklin	Sandy River Plt	3.9	72	100	0	28	Mx	0.0	0.0	0	0	0	0	0	0	0	0	0	1	5	RP	T		2	18	5	2.13	114
Saddleback Mtn (Sandy River Plt)	Franklin	Sandy River Plt	5.7	92	100	58	45	Mx	3.3	1.6	4	0	0	0	76	0	32	93	61	28	49	RP	T		2	31	4	6.43	6
Perry Mountain	Franklin	Sandy River Plt	2.1	90	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	7	16					26	4	0.73	212
Onion Hill	Franklin	Seven Ponds Twp	1.2	0	100	77	0	Pr	0.9	0.0	0	0	0	0	0	0	0	0	71	44	47						2	1.58	149
Boil Mountain	Franklin	Seven Ponds Twp	1.6	0	100	100	38	E	1.6	0.1	0	0	0	0	0	0	0	0	79	41	64					-1	2	1.79	135
Unnamed (Skinner Twp)	Franklin	Skinner Twp	4.5	5	100	80	0	Pr	3.6	0.1	0	0	0	0	0	0	0	95	79	35	63						1	2.82	75
Peaked Mountain (Skinner Twp)	Franklin	Skinner Twp	1.2	0	100	57	0	Pr	0.7	0.0	0	0	0	0	0	0	0	0	55	55	64						1	1.49	157
Moose Mountain	Franklin	Skinner Twp	2.1	0	100	50	0	Pr	1.1	0.0	0	0	0	0	0	0	0	0	54	36	68						0	1.29	169
King Mountain	Franklin	Skinner Twp	1.9	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	29	33						1	0.49	240
Kibby Mountain	Franklin	Skinner Twp	7.8	36	100	89	0	Pr	6.9	0.6	1	0	0	0	0	0	0	82	86	22	53			A	1		2	3.43	57
Caribou Mountain (Skinner Twp)	Franklin	Skinner Twp	3.9	0	100	79	0	Pr	3.1	0.6	0	0	0	0	0	0	0	0	74	32	62						1	1.79	136
Cow Ridge	Franklin	Stetsontown Twp	4.6	0	100	100	0	Pr	4.6	1.3	0	0	0	0	0	0	0	0	43	18	50						1	1.55	152
Tumbledown Mtn (T6 N of Weld)	Franklin	T 6 N of Weld	1.6	0	100	56	100	R	0.9	0.0	3	0	2	1	100	1	49	100	55	40	60			A	2	9	0	5.12	19
Jackson Mountain	Franklin	T 6 N of Weld	5.6	0	100	47	46	Mx	2.6	0.3	1	0	0	0	36	0	0	66	49	8	38			A	1	15	3	2.79	79
Blueberry Mountain	Franklin	T 6 N of Weld	3.4	5	95	14	73	R	0.5	0.0	0	0	0	0	100	0	0	49	13	13	38			A	1	8	1	2.29	103
Wilder Hill	Franklin	Temple	2.9	100	6	0	0	Pr	0.0	0.0	0	0	0	1	0	0	0	0	0	0	28						1	0.24	259
East Kennebago Mountain	Franklin	Tim Pond Twp	3.1	18	100	99	0	Pr	3.1	1.5	0	0	0	0	0	0	0	0	85	24	60						2	2.00	117
Unnamed 3 (Township D)	Franklin	Township D	1.0	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	0	13					12	4	0.51	234
Unnamed 2 (Township D)	Franklin	Township D	3.4	0	100	57	0	Pr	1.9	0.0	0	0	0	0	0	0	0	0	55	4	12					31	4	1.50	156
Unnamed 1 (Township D)	Franklin	Township D	1.1	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	5	12					45	4	0.88	198
Old Blue Mountain	Franklin	Township D	4.8	17	83	63	47	Mx	3.6	0.6	0	0	0	0	0	0	8	0	72	18	40		T		2	39	3	2.75	81
Elephant Mountain (Township D)	Franklin	Township D	6.8	0	100	80	54	Mx	5.4	1.2	0	0	0	0	0	0	0	0	74	18	35		T	A	3	32	5	3.27	60
Brimstone Mountain	Franklin	Township D	1.2	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	0	6					18	4	0.54	232
Unnamed (Township E)	Franklin	Township E	5.6	11	100	25	64	Mx	1.4	0.0	0	0	0	1	0	0	0	0	34	3	5	O	T		2	31	6	2.22	109
Horn Hill	Franklin	Township E	5.0	0	100	21	32	Mx	1.1	0.0	0	0	0	0	0	0	0	0	23	6	13	O				26	6	1.55	151
Spruce Mountain (Weld)	Franklin	Weld	4.2	100	0	0	0	Pr	0.0	0.0	0	0	0	1	0	0	0	0	0	17	48						3	0.65	220
Pope Mountain	Franklin	Weld	1.5	100	0	0	85	E	0.0	0.0	0	0	0	0	100	0	0	0	0	21	50					0	2	1.58	150

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The Horns	Franklin	Wyman Twp	3.0	0	100	91	100	R	2.7	0.4	2	0	1	1	100	0	75	100	88	40	77	RP	T	A	4	46	4	7.80	1
Cranberry Peak	Franklin	Wyman Twp	2.1	0	100	64	100	R	1.3	0.0	0	0	0	1	100	0	85	100	74	27	75			T	2	30	4	5.41	16
McFarland Mountain	Hancock	Bar Harbor	1.3	100	0	0	100	R	0.0	0.0	2	0	0	3	100	0	0	0	0	10	42						1	1.77	138
Champlain Mountain	Hancock	Bar Harbor	1.4	100	0	0	100	R	0.0	0.0	1	0	0	3	100	1	73	0	0	21	76			T/A	5		1	3.77	50
Cadillac Mountain	Hancock	Bar Harbor	3.9	100	0	0	100	R	0.0	0.0	3	0	4	5	100	0	40	0	0	7	43			T/A	6		1	3.50	56
Sargent Mountain	Hancock	Mount Desert	2.5	100	0	0	100	R	0.0	0.0	1	0	0	5	100	1	51	0	0	26	44	O		T/A	5		1	3.80	49
Saint Sauveur Mountain	Hancock	Mount Desert	1.0	100	0	0	100	R	0.0	0.0	0	0	1	3	100	1	0	0	0	6	44			T/A	4		1	2.49	94
Pemetic Mountain	Hancock	Mount Desert	1.8	100	0	0	100	R	0.0	0.0	1	0	0	5	100	0	53	0	0	9	62			T/A	5		1	3.10	68
Norumbega Mountain	Hancock	Mount Desert	1.3	100	0	0	100	R	0.0	0.0	1	0	0	3	100	0	0	0	0	9	65			T/A	3		1	2.29	104
Bernard Mountain	Hancock	Southwest Harbor	1.5	100	0	0	100	R	0.0	0.0	0	0	0	1	100	0	73	0	0	26	55			T/A	5		1	3.17	65
Beech Mountain	Hancock	Southwest Harbor	1.2	100	0	0	100	R	0.0	0.0	0	0	0	5	100	1	0	0	0	33	59			T/A	3		1	2.72	83
Mount Megunticook	Knox	Camden	2.1	100	0	0	59	R	0.0	0.0	1	0	0	2	100	0	76	0	0	5	52			T/A	3		1	3.02	70
Ragged Mountain	Knox	Rockport	1.4	100	0	0	0	Pr	0.0	0.0	1	0	0	2	100	0	0	0	0	20	68			A	1		0	1.86	128
Deer Mountain	Oxford	Adamstown Twp	3.1	99	100	94	1	Pr	2.9	0.0	0	0	0	0	0	0	0	0	93	21	61						2	1.87	127
Long Mountain	Oxford	Andover	4.8	100	0	0	0	Pr	1.0	0.0	0	0	0	1	41	0	0	24	20	7	34			A	2	10	5	1.97	119
Wyman Mountain	Oxford	Andover N Surplus	5.1	17	83	42	55	Mx	2.1	0.0	0	0	0	1	0	0	0	0	38	21	39		T		2	29	4	2.13	113
Sawyer Mountain	Oxford	Andover N Surplus	3.1	0	100	0	26	Mx	0.0	0.0	0	0	0	0	0	0	0	0	0	33	66		X		2	16	2	1.25	170
Grady Mountain	Oxford	Andover N Surplus	1.3	0	100	0	14	Mx	0.0	0.0	0	0	0	0	0	0	0	0	0	12	38					42	3	0.94	191
Surplus Mountain	Oxford	Andover W Surplus	1.9	0	100	31	100	R	0.6	0.0	0	0	0	0	100	0	0	100	23	33	65		T		2	45	4	4.17	38
Peabody Mountain	Oxford	Batchelders Grant	2.3	100	63	0	100	R	0.0	0.0	0	0	0	1	4	0	0	98	0	33	47			A	2	0	1	1.89	124
East Royce Mountain	Oxford	Batchelders Grant	2.0	97	97	0	100	R	0.0	0.0	1	0	0	1	100	0	0	46	17	55	81			A	3		2	3.17	64
Caribou Mtn (Batchelders Grant)	Oxford	Batchelders Grant	2.5	100	100	0	100	R	0.0	0.0	2	0	1	1	100	0	59	100	0	39	83			T/A	3	0	1	4.46	29
Unnamed (Bowmantown Twp)	Oxford	Bowmantown Twp	2.0	0	100	13	0	Pr	0.3	0.0	0	0	0	0	0	0	38	0	22	0	19						1	0.84	202
Barker Mtn (Bowmantown Twp)	Oxford	Bowmantown Twp	1.1	0	100	56	0	Pr	0.6	0.0	0	0	0	0	100	1	0	0	39	28	53						1	2.36	99
West Mountain	Oxford	Byron	1.9	100	0	0	0	Pr	0.0	0.0	0	0	0	1	0	0	0	0	5	29	53					4	1	0.70	215
Record Hill	Oxford	Byron	1.7	100	0	0	0	Pr	0.0	0.0	0	0	0	1	0	0	0	0	0	25	39					3	1	0.54	231
Old Turk Mountain	Oxford	Byron	1.5	100	0	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	44	67					5	1	0.83	203
Dunham Hill	Oxford	Byron	1.1	100	0	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	0	2					11	1	0.20	262
Dolly Mountain	Oxford	Byron	3.1	79	21	0	22	Mx	0.0	0.0	0	0	0	0	0	0	0	0	0	8	41					5	2	0.47	243
Spruce Mountain (C Surplus)	Oxford	C Surplus	1.0	0	100	0	100	E	0.0	0.0	0	0	0	0	0	0	0	0	0	14	23					47	3	0.95	190
Canton Mountain	Oxford	Canton	1.1	100	0	0	0	Pr	0.0	0.0	0	0	0	4	0	0	0	0	0	2	49						0	0.36	252
Unnamed (Gilead)	Oxford	Gilead	1.3	100	28	0	28	Mx	0.0	0.0	1	0	0	1	43	0	9	0	0	20	32			A	2	0	1	1.38	165
Table Rock	Oxford	Grafton Twp	1.3	0	100	61	100	OC	0.8	0.0	1	0	0	0	100	0	0	100	48	31	65			A	2	16	4	4.03	44
Red Ridge	Oxford	Grafton Twp	1.5	0	100	81	0	Pr	1.2	0.0	0	0	0	0	0	0	0	0	25	6	34					32	1	0.99	187
Old Speck Mountain	Oxford	Grafton Twp	2.9	0	100	100	100	R	2.9	1.5	2	0	0	3	100	0	62	100	100	45	73	RP/2	t	T/A	4	26	3	7.16	3
Mahoosuc Mountain	Oxford	Grafton Twp	2.1	0	100	100	100	R	2.1	0.6	3	0	0	2	100	0	0	100	84	51	75	RP/2	T	A	4	9	3	6.13	10
Baldpate Mountain	Oxford	Grafton Twp	2.9	0	100	76	100	R	2.2	0.9	1	1	1	1	100	0	16	100	42	42	65		T	A	4	39	5	5.59	14
Aziscohos Mountain	Oxford	Lincoln Plt	1.2	0	100	99	0	Pr	1.2	0.0	0	0	0	0	0	0	0	0	99	31	66			A	1		5	2.28	106
Bosebuck Mountain	Oxford	Lynchtown Twp	1.7	0	74	62	26	Mx	1.1	0.0	0	0	0	1	0	0	52	0	61	32	54						2	2.04	116

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Speckled Mountain (Mason Twp)	Oxford	Mason Twp	4.7	100	82	0	100	R	0.0	0.0	1	0	0	1	100	0	45	100	3	27	70			T/A	6		2	4.28	33
Pickett Henry Mountain	Oxford	Mason Twp	2.8	100	94	0	29	Mx	0.0	0.0	0	0	0	0	0	0	72	100	0	29	68					0	2	2.55	90
Mount Zircon	Oxford	Milton Twp	2.3	100	73	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	31	64						3	0.81	205
Sunday River Whitecap	Oxford	Newry	4.1	87	13	7	0	Mx	1.9	0.0	2	0	3	0	61	0	40	76	39	32	63			T	2	5	4	4.20	37
Puzzle Mountain	Oxford	Newry	2.8	100	0	0	0	Pr	0.8	0.0	0	0	0	1	0	0	0	0	29	36	60			T	2	7	1	1.48	158
Plumbago Mountain	Oxford	Newry	2.0	100	0	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	12	63					0	0	0.39	251
Barker Mountain (Newry)	Oxford	Newry	1.1	100	0	0	0	Pr	0.0	0.0	0	0	0	0	0	0	88	0	0	18	67					1	0	1.46	160
Heather Mountain	Oxford	Oxbow Twp	2.7	0	100	81	37	Mx	2.2	0.0	0	0	0	0	0	0	0	0	21	15	33						1	0.81	204
Rump Mountain	Oxford	Parmachenee Twp	0.9	0	40	40	60	R	0.4	0.7	0	0	0	3	0	0	0	100	40	17	55						2	2.18	111
Ledge Ridge	Oxford	Parmachenee Twp	1.1	0	100	58	0	Pr	0.6	0.0	0	0	0	3	60	1	0	100	73	9	32						1	3.12	67
Speckled Mountain (Peru)	Oxford	Peru	1.2	100	0	0	14	Mx	0.0	0.0	0	0	0	2	0	0	0	0	0	31	72			A	1		3	1.07	178
Black Mountain (Peru)	Oxford	Peru	2.1	100	0	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	25	48			A	1		4	0.94	193
Wheeler Mountain	Oxford	Riley Twp	4.0	28	72	45	0	Pr	1.8	0.0	0	0	0	0	0	0	0	17	32	31	59					2	0	1.25	171
Slide Mountain	Oxford	Riley Twp	2.4	0	100	36	100	OC	0.9	0.0	0	0	0	0	100	0	0	59	35	28	47			A	2	6	4	3.14	66
North Peak	Oxford	Riley Twp	1.3	0	100	100	100	R	1.3	0.5	2	0	0	0	100	0	71	100	73	33	70		T		2	8	1	5.32	17
Mount Carlo	Oxford	Riley Twp	1.7	0	74	74	100	R	1.3	0.3	1	0	0	3	72	0	1	100	71	33	63		T	A	3	2	1	4.29	32
Lary Brook Mountain	Oxford	Riley Twp	1.5	0	100	67	100	E	1.0	0.0	0	0	0	0	0	0	0	100	51	39	72					3	1	2.41	96
Goose Eye Mountain	Oxford	Riley Twp	1.3	0	100	100	100	R	1.3	0.8	2	0	0	0	100	0	80	100	68	38	80		T	A	5	7	1	5.89	11
Fulling Mill Mountain	Oxford	Riley Twp	1.2	0	100	96	100	R	1.2	0.0	2	0	0	1	100	0	0	100	68	45	69		T	A	3	5	2	4.83	24
Bear Mountain	Oxford	Riley Twp	3.5	13	87	57	87	E	2.0	0.0	0	0	0	0	0	0	0	96	52	36	68					2	2	2.52	92
Walker Mountain	Oxford	Roxbury	2.7	100	0	0	0	Pr	0.0	0.0	0	0	0	1	0	0	0	0	0	20	46						1	0.50	238
Flathead Mountain	Oxford	Roxbury	3.0	100	0	0	0	Pr	0.0	0.0	0	0	0	1	0	0	0	0	0	6	33					0	1	0.31	255
Whitecap Mountain	Oxford	Rumford	1.1	100	0	0	0	R	0.0	0.0	2	0	0	2	100	0	87	0	0	17	52						0	2.73	82
Black Mountain (Rumford)	Oxford	Rumford	1.3	100	0	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	13	49						0	0.33	254
Miles Knob	Oxford	Stoneham	2.2	100	43	0	100	R	0.0	0.0	1	0	0	0	100	0	82	100	0	25	72			A	3		2	4.13	40
Unnamed (Township C)	Oxford	Township C	1.8	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	5	18					18	3	0.56	228
Metallak Mountain 2	Oxford	Township C	2.2	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	2	12					5	1	0.21	261
Metallak Mountain	Oxford	Township C	2.3	0	100	15	0	Pr	0.3	0.0	0	0	0	0	0	0	0	0	18	21	31					10	2	0.81	206
C Bluff Mountain	Oxford	Township C	2.7	0	100	8	26	Mx	0.2	0.0	0	0	0	0	56	2	0	0	6	25	52					19	4	2.29	105
West Kennebago Mountain	Oxford	Uppr Cupsuptic Twp	2.8	0	100	100	100	E	2.8	1.6	0	0	0	0	0	0	0	0	85	27	69			A	1		2	2.22	108
Twin Mountains	Oxford	Uppr Cupsuptic Twp	2.2	0	100	100	100	E	2.2	0.0	0	0	0	0	0	0	0	0	73	28	52						1	1.53	154
Snow Mtn (Upper Cupsuptic Twp)	Oxford	Uppr Cupsuptic Twp	1.5	0	100	100	100	E	1.5	0.6	0	0	0	0	0	0	0	0	81	48	62						1	1.84	130
Bull Mountain	Oxford	Uppr Cupsuptic Twp	1.5	0	100	100	100	E	1.5	0.0	0	0	0	0	0	0	0	0	53	18	39						0	1.03	182
Spruce Mountain (Woodstock)	Oxford	Woodstock	3.6	100	0	0	13	Mx	0.0	0.0	0	0	0	2	0	0	0	0	0	26	59						3	0.80	207
Mollyockett Mountain	Oxford	Woodstock	1.9	100	0	0	0	Pr	0.0	0.0	0	0	0	2	0	0	0	0	0	2	56						2	0.49	239
Blackcap	Penobscot	Eddington	1.1	100	0	0	0	Pr	0.0	0.0	1	0	1	0	0	0	76	0	0	8	46						1	1.43	163
Passadumkeag Mountain	Penobscot	Grand Falls Twp	1.9	100	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	10	48			A	1		1	0.55	229
Mount Chase	Penobscot	Mount Chase	2.7	100	100	0	0	Pr	0.0	0.0	2	0	0	0	0	0	0	0	8	35	58			A	1		4	1.46	159
Deasey Mountain	Penobscot	T3 R7 WELS	1.0	0	100	0	100	R	0.0	0.0	0	0	0	0	100	0	0	100	0	20	58						3	2.69	84

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Unnamed (T4 R8 WELS)	Penobscot	T4 R8 WELS	1.4	0	83	0	17	Mx	0.0	0.0	0	0	0	0	57	0	0	29	0	4	13					0	2	1.12	176
Roberts Mountain	Penobscot	T6 R6 WELS	2.2	100	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	14	47						2	0.50	237
Prong Pond Mountain	Piscataquis	Beaver Cove	1.8	0	100	0	0	Pr*	0.0	0.0	0	0	0	0	0	0	0	0	0	39	53					2	4	0.94	192
Baker Mountain	Piscataquis	Beaver Cove	3.9	0	100	92	19	Mx*	3.6	0.1	1	0	0	0	0	0	0	93	86	32	62					33	2	3.41	58
Big Moose Mountain	Piscataquis	Big Moose Twp	4.8	100	100	22	20	Mx*	1.1	0.0	4	0	1	0	100	0	26	96	28	37	55			A	1		1	4.16	39
Russell Mtn (Blanchard Twp)	Piscataquis	Blanchard Twp	2.2	100	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	2	33					15	2	0.48	242
White Cap Mtn 2 (Bwdn Coll Gr E)	Piscataquis	Bowdoin Coll Grant E	1.1	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	3	9	52					89	6	1.73	141
White Cap Mtn (Bwdn Coll Gr E)	Piscataquis	Bowdoin Coll Grant E	2.2	0	100	100	56	R	2.2	0.7	2	0	0	0	0	0	84	100	91	33	74		T	A	3	86	6	6.22	9
West Peak	Piscataquis	Bowdoin Coll Grant E	3.2	0	100	23	100	R	0.7	0.0	0	0	0	0	0	0	0	93	48	29	61		T		2	100	7	4.10	43
Hay Mountain	Piscataquis	Bowdoin Coll Grant E	1.4	0	100	100	100	R	1.4	0.0	0	0	0	0	0	0	0	100	92	10	77		T		2	78	5	4.20	36
Big Spruce Mountain	Piscataquis	Bowdoin Coll Grant E	1.8	0	100	58	0	Pr	1.0	0.0	0	0	0	0	0	0	0	100	72	37	69					66	6	3.63	53
Elephant Mtn (Bwdn Coll Gr W)	Piscataquis	Bowdoin Coll Grant W	2.2	0	100	0	27	Mx	0.0	0.0	0	0	0	0	0	0	0	0	17	38	72			A	1	16	3	1.41	164
Blue Ridge (Bwdn Coll Gr W)	Piscataquis	Bowdoin Coll Grant W	4.1	0	100	0	0	Pr*	0.0	0.0	0	0	0	0	0	0	0	0	0	23	36	RP				20	5	1.98	118
Little Spencer Mountain	Piscataquis	E Middlesex Canal Gr	2.0	0	100	53	0	Pr	1.1	0.0	0	0	0	0	0	0	0	0	37	47	83						2	1.45	162
Barren Mountain (Elliotsville Twp)	Piscataquis	Elliottsville Twp	6.1	0	100	0	100	R	0.0	0.0	2	0	0	0	100	1	0	100	5	26	56		T	A	3	58	12	5.51	15
Lily Bay Mountain	Piscataquis	Frenchtown Twp	6.0	0	100	59	0	Pr*	3.5	0.0	1	0	0	0	0	0	0	90	41	26	56			A	1	5	3	2.80	77
Bluff Mountain	Piscataquis	Frenchtown Twp	2.3	0	100	0	0	Pr*	0.0	0.0	0	0	0	0	0	0	0	0	5	24	43	RP				10	2	1.72	142
Blair Hill	Piscataquis	Greenville	4.2	100	0	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	8	19					6	4	0.55	230
Lobster Mountain	Piscataquis	Lobster Twp	4.7	0	100	0	43	Mx	0.0	0.0	1	0	1	0	0	0	0	0	0	31	71						3	1.06	179
Unnamed (Moosehead Jct Twp)	Piscataquis	Moosehead Jct Twp	2.0	100	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	19	56					3	1	0.53	233
Little Moose Mountain	Piscataquis	Moosehead Jct Twp	1.7	100	100	0	100	OC	0.0	0.0	2	0	0	0	54	0	89	0	0	28	68					0	2	2.58	88
Big Moose Mountain 2	Piscataquis	Moosehead Jct Twp	1.1	100	100	0	100	OC	0.0	0.0	0	0	0	0	46	0	0	0	0	3	16						0	0.56	227
South Turner Mountain	Piscataquis	Mount Katahdin Twp	1.3	0	0	0	100	R	0.6	0.0	0	0	0	4	100	0	31	100	4	45	45			A	1	0	3	3.60	54
Rum Mountain	Piscataquis	Mount Katahdin Twp	2.6	0	0	0	100	R	0.8	0.0	0	1	0	3	100	0	0	100	52	23	43					44	8	4.30	31
Mount Katahdin	Piscataquis	Mount Katahdin Twp	4.8	0	0	0	100	R	3.4	3.0	2	1	0	6	100	1	26	100	14	56	62		X	T/A	5	15	7	6.57	4
Lord Mountain	Piscataquis	Nesourdnahunk Twp	1.2	0	0	0	100	R	0.0	0.0	0	0	0	0	100	0	0	100	0	30	34					0	1	2.50	93
Shaw Mountain	Piscataquis	Shawtown Twp	3.0	0	100	0	100	R	0.0	0.0	0	0	0	0	0	0	0	0	5	21	52					7	6	1.04	181
Hedgehog Mtn (Shawtown Twp)	Piscataquis	Shawtown Twp	2.0	0	100	0	100	R	0.0	0.0	0	0	0	0	0	0	0	0	0	15	12					15	4	0.67	218
Black Pinnacle	Piscataquis	Shawtown Twp	2.1	0	100	0	100	R	0.0	0.0	0	0	0	0	0	0	0	0	0	14	28					13	6	0.88	197
Wadleigh Mountain	Piscataquis	T1 R12 WELS	1.3	0	100	0	100	OC	0.0	0.0	0	0	0	0	0	0	0	100	0	4	31					19	5	1.78	137
Farrar Mountain	Piscataquis	T1 R12 WELS	1.8	0	100	0	100	OC	0.0	0.0	0	0	0	0	0	1	0	100	13	32	71					13	2	2.37	97
Peaked Mtn (T10 R10 WELS)	Piscataquis	T10 R10 WELS	1.2	0	100	0	0	Pr	0.0	0.0	1	0	0	0	0	0	0	0	0	36	65						5	1.18	174
South Brother	Piscataquis	T3 R10 WELS	1.2	0	0	0	100	R	1.2	0.6	0	1	0	0	100	0	49	100	11	29	43			T/A	3	8	4	4.40	30
Mount O-J-I	Piscataquis	T3 R10 WELS	2.2	0	0	0	100	R	0.7	0.0	0	1	0	0	100	0	0	100	35	62	71			T	2	17	8	4.56	27
Doubletop Mountain	Piscataquis	T3 R10 WELS	1.7	0	0	0	100	R	0.8	0.0	0	0	0	1	100	0	0	100	66	60	82			T	2	16	6	4.67	26
Barren Mtn (T3 R10 WELS)	Piscataquis	T3 R10 WELS	2.1	0	0	0	100	R	1.8	0.3	0	1	0	0	100	0	0	100	57	33	61					43	7	4.47	28
Squaws Bosom	Piscataquis	T3 R11 WELS	3.1	0	69	55	100	R	1.7	0.0	0	0	0	0	85	0	0	100	64	34	75					6	9	4.13	42
Wassataquoik Mountain	Piscataquis	T4 R10 WELS	2.6	0	0	0	100	R	0.2	0.0	0	0	0	0	100	2	0	100	48	30	58					0	3	3.95	45
North Brother	Piscataquis	T4 R10 WELS	2.5	0	0	0	100	R	2.1	1.4	0	2	0	0	100	0	59	100	40	53	61			T	2	0	4	5.05	20

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Mullen Mountain	Piscataquis	T4 R10 WELS	1.7	0	0	0	100	R	0.9	0.0	0	1	0	0	100	0	0	100	55	43	58					0	3	3.64	51
Center Mountain	Piscataquis	T4 R10 WELS	2.1	0	0	0	100	R	0.2	0.0	0	1	0	0	100	0	0	100	7	56	74					0	4	3.35	59
North Turner Mountain	Piscataquis	T4 R9 WELS	2.7	0	0	0	100	R	0.2	0.0	0	0	0	0	100	0	0	100	5	29	48					0	4	2.88	73
Howe Peaks	Piscataquis	T4 R9 WELS	5.2	0	0	0	100	R	4.4	2.8	1	1	0	6	100	3	40	100	18	28	45			T/A	3	4	6	6.43	7
East Turner Mountain	Piscataquis	T4 R9 WELS	2.2	0	31	0	69	R	0.1	0.0	1	0	0	0	100	0	0	100	3	20	47					0	4	2.92	71
Traveler Mountain	Piscataquis	T5 R9 WELS	4.8	0	0	0	100	R	2.1	0.0	0	1	0	0	100	0	34	100	2	37	72						3	3.63	52
South Branch Mountain	Piscataquis	T5 R9 WELS	1.9	0	0	0	100	R	0.0	0.0	0	0	0	0	100	0	0	100	0	51	76			T	2		1	3.21	63
Sable Mountain	Piscataquis	T5 R9 WELS	2.1	0	0	0	100	R	0.0	0.0	0	0	0	0	100	0	0	100	0	14	35						1	2.36	98
Pogy Mountain	Piscataquis	T5 R9 WELS	3.4	0	0	0	100	R	0.3	0.0	0	0	0	0	100	0	0	100	0	21	27					0	3	2.59	87
North Traveler Mountain	Piscataquis	T5 R9 WELS	2.1	0	0	0	100	R	0.9	0.0	1	1	0	0	100	0	33	100	26	56	64			A	3		2	4.26	34
Barrell Ridge	Piscataquis	T5 R9 WELS	1.2	0	0	0	100	R	0.0	0.0	0	0	0	0	100	0	0	100	0	14	73			A	1		2	2.79	80
Hurd Mountain	Piscataquis	T6 R15 WELS	1.6	0	100	0	0	Pr	0.0	0.0	1	0	1	0	0	0	0	0	0	7	35						5	0.85	200
Caucomgomoc Mountain	Piscataquis	T7 R15 WELS	2.6	0	100	0	7	Mx	0.0	0.0	0	0	0	0	0	0	0	100	0	10	41						1	1.36	167
Columbus Mountain	Piscataquis	T7 R9 NWP	1.6	0	100	0	100	R	0.0	0.0	1	0	1	0	100	0	41	100	0	29	49		T		2	29	10	4.79	25
Benson Mountain	Piscataquis	T7 R9 NWP	2.4	0	100	0	100	E	0.0	0.0	0	0	0	0	100	0	0	0	0	25	47					22	5	2.07	115
Norway Bluff	Piscataquis	T9 R9 WELS	4.4	0	100	0	100	E	0.0	0.0	0	0	0	0	0	0	10	0	3	28	65						2	0.85	199
Jo-Mary Mountain	Piscataquis	TA R10 WELS	1.9	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	52	55	74					73	3	2.32	100
Cooper Mountain	Piscataquis	TA R11 WELS	1.2	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	0	11					38	2	0.60	223
Big Boardman Mountain	Piscataquis	TA R11 WELS	1.4	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	5	32					24	4	0.76	211
Saddleback Mtn (TB R11 WELS)	Piscataquis	TB R11 WELS	6.5	0	100	15	0	Pr	1.0	0.0	0	0	0	0	0	0	0	0	29	33	68	O				6	5	1.81	133
Little Spruce Mountain	Piscataquis	TB R11 WELS	1.6	0	100	97	0	Pr	1.6	0.0	0	0	0	0	0	0	8	100	100	23	53					55	3	3.50	55
Big Shanty Mountain	Piscataquis	TB R11 WELS	2.4	0	100	28	0	Pr	0.7	0.0	0	0	0	0	0	0	0	100	47	40	65					18	3	2.62	86
Big Spencer Mountain	Piscataquis	TX R14 WELS	2.9	0	100	72	92	R	2.1	0.0	1	0	0	0	0	0	0	0	55	47	80			A	1		0	1.88	125
Trickey Bluffs	Somerset	Alder Brook Twp	1.0	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	64	72						1	0.98	188
Ironbound Mountain	Somerset	Alder Brook Twp	2.5	0	100	0	36	Mx	0.0	0.0	0	0	0	0	0	1	0	0	0	33	50						2	1.02	183
Number Six Mountain	Somerset	Appleton Twp	1.3	0	100	76	0	Pr	1.0	0.0	1	0	0	1	100	0	0	100	98	39	65						4	4.25	35
Greenlaw Mountain	Somerset	Appleton Twp	1.8	0	100	23	0	Pr	0.4	0.0	1	0	0	1	44	0	0	99	64	45	54						1	3.02	69
Sally Mountain	Somerset	Attean Twp	1.9	0	100	0	0	E	0.0	0.0	0	0	0	0	100	0	0	0	0	37	71			A	1		6	2.32	102
Bald Mountain	Somerset	Bald Mtn Twp T2 R3	4.1	100	100	0	54	Mx	0.0	0.0	2	0	2	0	100	0	24	92	0	18	35		X		2	31	3	3.84	48
Number Two Mountain	Somerset	Bald Mtn Twp T4 R3	2.6	100	100	6	0	Pr	0.2	0.0	0	0	0	0	0	0	0	0	20	21	33	O					0	0.89	195
Boundary Bald Mountain	Somerset	Bald Mtn Twp T4 R3	6.3	6	100	90	0	Pr	5.7	0.4	0	0	0	0	0	0	32	81	74	35	59						1	3.24	62
Unnamed (Bradstreet Twp)	Somerset	Bradstreet Twp	1.7	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	0	5						1	0.11	265
Moxie Mountain	Somerset	Caratunk	5.0	100	0	0	0	Pr	0.3	0.0	2	0	2	2	0	0	0	99	12	23	50	O				25	2	2.82	76
Roundtop Mountain	Somerset	Carrying Pl Twn Twp	2.5	6	100	0	8	Mx	0.0	0.0	0	0	0	0	0	0	0	0	0	8	16		X		2	45	2	1.09	177
Little Bigelow Mountain	Somerset	Dead River Twp	3.0	0	100	59	100	R	1.8	0.0	1	0	0	1	100	0	73	100	40	37	74		T		2	59	3	5.61	13
Bigelow Mountain	Somerset	Dead River Twp	2.6	0	100	94	100	R	2.4	1.8	2	0	5	2	100	1	64	100	56	66	91		T	A	4	72	4	7.65	2
Green Mountain	Somerset	Dole Brook Twp	1.3	0	100	0	100	E	0.0	0.0	1	0	0	0	99	0	0	0	0	11	23			A	1		1	1.59	147
Witham Mountain	Somerset	Highland Plt	2.4	100	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	19	55					6	0	0.47	244
Stewart Mountain	Somerset	Highland Plt	3.8	100	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	7	12	35					22	2	0.72	213

TABLE 1

Site name	County	Town	Length (miles)	% Expedited	% LURC	% P-MA	% Conserved	Conservation status	Length above 2700' (mi)	Length above 3500' (mi)	Current Community EOs	Historic Community EOs	Current Species EOs	Historic Species EOs	% BwH Focus Area	# RTE species	% TNC summit	% Roadless	% Bicknell's habitat	% Steep (ridgeline)	% Steep (upper slope)	Ridgeline pond	Appalachian Trail	Other hiking trails	Trail access points	AT viewshed score	# Scenic features	Composite score	Composite score rank
Burnt Hill (Highland Plt)	Somerset	Highland Plt	2.1	100	100	0	0	Pr	0.0	0.0	0	0	0	1	0	0	0	0	0	11	25					6	0	0.30	257
Hedgehog Mtn (Hobbstown Twp)	Somerset	Hobbstown Twp	2.1	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	24	15	40						3	0.80	208
Unnamed 2 (Jackman)	Somerset	Jackman	1.6	89	11	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	4	33						0	0.18	264
Unnamed 1 (Jackman)	Somerset	Jackman	1.0	100	0	0	0	Pr	0.0	0.0	0	0	0	1	0	0	0	0	0	15	70						1	0.56	226
Johnson Mountain	Somerset	Johnson Mtn Twp	2.2	100	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	18	19	33						0	0.50	236
Cold Stream Mountain	Somerset	Johnson Mtn Twp	6.5	100	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	1	12						2	0.22	260
Unnamed (Long Pond Twp)	Somerset	Long Pond Twp	2.1	100	100	0	0	Pr	0.0	0.0	0	0	0	1	0	0	0	0	15	18	37						4	0.84	201
Granny Cap	Somerset	Lwr Enchanted Twp	1.6	0	100	2	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	21	50	89						2	1.22	173
Williams Mountain	Somerset	Misery Twp	2.7	100	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	14	31						4	0.59	224
Parlin Mountain	Somerset	Parlin Pond Twp	2.9	100	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	7	8						3	0.34	253
Bean Brook Mountain	Somerset	Parlin Pond Twp	1.8	70	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	46	8	65						2	0.99	186
Pierce Pond Mountain	Somerset	Pierce Pond Twp	2.0	0	100	0	48	Mx	0.0	0.0	1	0	0	0	0	0	0	67	0	32	65					39	2	1.96	122
Unnamed (Prentiss Twp)	Somerset	Prentiss Twp	2.2	17	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	0	1						0	0.00	267
Russell Mtn (Russell Pond Twp)	Somerset	Russell Pond Twp	1.1	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	15	10	25						1	0.44	247
Little Russell Mountain	Somerset	Russell Pond Twp	1.4	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	13	21			A	1		1	0.46	246
Telephone Hill	Somerset	Saint John Twp	1.5	0	100	0	31	Mx	0.0	0.0	0	0	0	1	0	0	0	65	0	12	30						1	1.01	184
Unnamed (Sandwich Acad Gr)	Somerset	Sandwich Acad Gr	2.5	100	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	2	17						2	0.26	258
Long Pond Mountain	Somerset	Sandwich Acad Gr	1.1	100	100	0	0	Pr*	0.0	0.0	0	0	0	0	0	0	0	0	0	9	23						0	0.19	263
Unnamed (Sandy Bay Twp)	Somerset	Sandy Bay Twp	3.3	35	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	7	20	39						0	0.42	249
Sandy Stream Mountain	Somerset	Sandy Bay Twp	2.7	100	100	20	0	Pr	0.5	0.0	0	0	0	0	0	0	0	0	32	19	29						0	0.67	217
Sandy Bay Mountain	Somerset	Sandy Bay Twp	3.6	64	100	21	0	Pr	0.8	0.0	0	0	0	0	0	1	0	0	23	18	43						0	1.01	185
Unnamed (Soldiertown Twp)	Somerset	Soldiertown Twp	1.1	0	100	0	100	E	0.0	0.0	0	0	0	0	0	0	0	0	0	0	8						0	0.04	266
Blanchard Mountain	Somerset	T3 R4 BKP WKR	1.1	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	11	53					16	2	0.66	219
Seboomook Mountain	Somerset	T4 R17 WELS	2.2	0	100	0	100	E	0.0	0.0	1	0	0	0	0	0	0	0	0	6	13						2	0.43	248
Tumbledown Mtn (T5 R6 BKP WKR)	Somerset	T5 R6 BKP WKR	5.3	0	100	74	0	Pr	3.9	0.2	0	0	0	2	0	0	0	97	87	44	61	O(2)					2	3.86	47
Three Slide Mountain	Somerset	T5 R6 BKP WKR	2.1	0	100	93	0	Pr	2.0	0.0	0	0	0	0	0	0	0	100	83	40	71						2	2.89	72
Number Five Mountain	Somerset	T5 R7 BKP WKR	1.6	0	100	76	88	R	1.2	0.0	1	0	0	1	100	0	0	100	72	42	67						5	4.13	41
Pleasant Pond Mountain	Somerset	The Forks Plt	2.0	100	66	0	56	R	0.0	0.0	0	0	0	2	0	0	0	0	0	26	63		T		2	42	3	1.74	139
Blue Ridge (Tntn & Rayn Acad Gr)	Somerset	Tntn & Rayn Acad Gr	1.4	100	100	0	0	Pr*	0.0	0.0	0	0	0	0	0	0	0	0	0	15	61						1	0.49	241
Unnamed (Upper Enchanted Twp)	Somerset	Uppr Enchanted Twp	2.8	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	7	23						3	0.41	250
Shutdown Mountain	Somerset	Uppr Enchanted Twp	1.4	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	3	0	0	0	32	45						2	1.65	146
Coburn Mountain	Somerset	Uppr Enchanted Twp	7.4	44	100	53	8	Mx	3.9	0.6	0	0	0	0	0	2	0	0	69	17	61	O					3	2.85	74
Pleasant Mountain	Washington	Devereaux Twp	1.4	0	100	0	0	Pr	0.0	0.0	0	0	0	0	0	0	0	0	0	10	30						1	0.31	256